PRO-VISION

Temperature controller

User's Manual

M 890-00515 rev.03

PN895-00572 REV.03

WARNINGS
The warranty can be void if this product is used in a manner not specified by the manufacturer.

Every effort has been made to ensure that this manual is complete, accurate and up-to-date. The information contained in it is however subject to change without notice due to further developments.

TABLE OF CONTENTS

1. INTRODUCTION 5
- 1.1. Precautions 5
- 1.2. Symbols of the Manual 5
- 1.3. Controller's Overview 5
- 1.4. Main Features 6

2. MOUNTING INSTRUCTIONS 6
- 2.1. Installing the Controller on the Wall 6
- 2.2. Connections 6
  - 2.2.1. Main Wiring 6
  - 2.2.2. Alarm Connection 7
  - 2.2.3. Sensor Inputs 7
  - 2.2.4. 0-10V Output Connection 7

3. USER INTERFACE 7
- 3.1. Location of the Controls 7
- 3.2. Adjusting a Parameter 7

4. INSTALLATION SETUP 8
- 4.1. Setting the Time & Date 8
- 4.2. Password 8
  - 4.2.1. Entering a Password 8
  - 4.2.2. Changing / Retrieving a Password 8
- 4.3. Controller Programs & Copy/Paste Function 9
- 4.4. Set-up Menu 9
- 4.5. Sensor Assignment 12
  - 4.5.1. Assigning the Sensors 12
  - 4.5.2. Selecting the Attic Sensor 13
  - 4.5.3. Egg Room Sensors 13
  - 4.5.4. Main Breaker Sensor 13
- 4.6. Calibrating the Inputs 13
- 4.7. Relays 13
  - 4.7.1. Relay Assignment 13
  - 4.7.2. Relays with Current Sensors 14
- 4.8. Non-Brood Zones & Clean Mode 14
- 4.9. Test Mode 15
- 4.10. Version 15

5. SET POINTS 16
- 5.1. Temperature & RH Set Points 16
- 5.2. Set Point Ramp 16

6. VENTILATION & COOLING 17
- 6.1. Overview of the Ventilation Concepts 17
- 6.2. Minimum Ventilation 18
  - 6.2.1. Minimum Ventilation Timer 18
  - 6.2.2. Min Ventilation Timer Ramp 18
  - 6.2.3. Minimum Ventilation Fans 18
    - 6.2.3.1. Fan Selection 18
    - 6.2.3.2. Fan Cycling 18
  - 6.2.4. Air Intake in Min Ventilation 19
- 6.3. Lateral Ventilation 21
  - 6.3.1. Lateral Ventilation Fans 21
  - 6.3.2. Air Intake in Lateral Vent 21
- 6.4. Natural Ventilation 23
- 6.5. Tunnel Ventilation 24
  - 6.5.1. Principle of Operation 24
  - 6.5.2. Tunnel Ventilation in Standby 24
  - 6.5.3. Tunnel Fans 24
  - 6.5.4. Tunnel Inlets 25
    - 6.5.4.1. Temperature-based Tunnel Inlet 25
    - 6.5.4.2. Pressure-based Tunnel Inlets 25
- 6.6. Cooling Outputs 26
- 6.7. Stir Fans 27

7. HEATING 28

8. LIGHTS 29
- 8.1. Principle of Operation 29
- 8.2. Settings 29
  - 8.2.1. Light Program Settings 29
  - 8.2.2. Light Peak Settings 30

9. TIME CLOCKS 30
- 9.1. Clocks in a Broiler or Turkey Facility 30
- 9.2. Clocks in a Breeder Facility 31

10. WATER LINE FLUSH 32

11. EGG ROOM OUTPUTS 33

12. RELATIVE HUMIDITY (RH) COMPENSATION 34
- 12.1. High RH Comp.on the Min Vent. Timer 34
- 12.2. High RH Compensation with the Heaters 34
- 12.3. RH Compensation with the Cooling Outputs 35

13. ALARMS 36
13.1. Alarm Log 36
13.2. Temperature Alarms 36
13.2.1. Critical Temperature Ramp 37
13.2.2. Static Pressure Alarms 37
13.2.3. Water Spill Alarm 38
13.2.4. Feeder Alarm 38
13.2.5. Amperage Draw Alarm 38
13.2.6. 0-10V Output Error 38

14. MONITORING FUNCTIONS 39
14.1. Current Conditions 39
14.1.1. Current Condition Screen Saver 39
14.1.2. Current Input/Output Status 39
14.2. History Menus 40
14.3. Animal Age & Count 40
14.4. Egg Count 41
14.5. Operation Costs & Current Consumption 41

15. UPDATE & BACKUP 41

16. DIAGNOSTIC 42

17. TECHNICAL SPECIFICATIONS 43

18. INDEX 44

1. INTRODUCTION

1.1. Precautions

WARNING: Read and save these instructions!

Safety may be jeopardized if the equipment is used in a manner not specified by the manufacturer. Carefully read and keep the following instructions for future reference.

We strongly recommend installing supplementary natural ventilation as well as a backup thermostat on at least one cooling stage.

Although fuses at the input and outputs of the controller protect its circuits in case of an overload or over-voltage, we recommend installing an additional protection device on the controller's supply circuit.

The room temperature where the controller is located must always remain between 32°F and 104°F (0°C to 40°C). Indoor use only!

To avoid exposing the controller to harmful gases or excessive humidity, it is preferable to install it in a corridor.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not spray water on the controller! In order to clean the control, wipe it with a damp cloth.

Before servicing or cleaning unit, switch power off at service panel and lock the switch disconnecting means to prevent power from being switched accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

1.2. Symbols of the Manual

Warning. Read the following text carefully; it contains important information which, if ignored, may cause the controller to operate improperly.

High Voltage. Hazard of electrical shock. Read the message and follow the instructions carefully.

Pay attention. The following text contains very useful information.

Press on the proper menu selector.

MAIN ***Press the "Main Menu" push-button.***

Both direct and alternating current (AC/DC).

Direct current (DC).

Alternating current (AC).

Earth Ground Terminal
Primarily used for functional earth terminals which are generally associated with test and measurement circuits. These terminals are not for safety earthing purposes but provide an earth reference point.

For Customer Use: Enter below the serial number located on the side of the alarm system and keep this information for future reference.

Model:	PRO-VISION
Serial number:	_____
Date installed:	_____

1.3. Controller's Overview

The PRO-VISION is an electronic device used for environmental control in livestock buildings. It combines sidewall, natural and tunnel ventilation into one powerful system.

OUTPUTS — The PRO-VISION can control up to 128 relays located in external relay panels. These relays can be used to control the following outputs:

- 32 heaters;
- 16 hi-fire heaters;
- 5 lateral fans;
- 20 tunnel fans;
- 1 stir fan;
- 6 cooling outputs;
- 2 tunnel inlets;
- 2 natural ventilation curtains;
- 1 sidewall vent;
- 1 attic vent;
- 8 time clocks;
- 2 light outputs (0-10V);
- 8 water line flushing outputs;
- 1 egg room heater;
- 1 egg room cooling output;
- 1 egg room humidity output;
- 1 alarm output;
- 1 backup relay;
- 4 feeder cut-off relays.

BUILT-IN INPUTS:

- 32 inside temperature sensors (8 basic temperature inputs & up to 24 additional inputs with the expansion cards);
- 1 outside temperature sensor;
- 1 relative humidity sensor;
- 1 static pressure sensor;
- 1 NH^3 sensor;
- 1 wind speed sensor;
- 4 feeder monitoring inputs;
- 2 water meters.

Refer to the end of this manual to connect the sensors and loads.

1.4. Main Features

Easy-to-Use Controller — With its convenient menu selectors and its large graphic LCD screen, the PRO-VISION is certainly the most easy-to-use temperature controller on the market.

5 Controller Programs — The controller allows using 5 different programs to control the room temperature. It is thus possible to activate a specific program that uses particular temperature settings according to the animal age for instance.

32 Indoor Temperature Sensors — Up to 32 temperature sensors can be connected to the controller to obtain an accurate reading of the average room temperature and a faster reaction time. The controller comes with 8 basic temperature inputs and 24 additional inputs can be added with the optional extension cards.

Minimum Ventilation Cycle — When ventilation is not required to reduce the room temperature, fan outputs can run either continuously or intermittently to reduce humidity levels and supply oxygen to the room.

Recuperation of the Warm Attic Air — In order to make energy savings, the controller can extract the warm air from the attic and send it back into the room.

Tunnel Ventilation — When the room temperature rises, tunnel ventilation reduces the actual temperature perceived by the animals.

Natural Ventilation — This is a ventilation mode that uses existing air currents and natural convection to move and distribute air through the building.

Humidity Control — The control offers many ways to compensate for high or low humidity levels.

Control of the Air Inlet Movement — The movement of the air inlets (sidewall vents or tunnel inlets) can be coordinated with the operation of the fans or according to the pressure level. This allows the inlets to be adjusted correctly, without the influence of uncontrollable factors such as wind or air from adjoining rooms.

Egg Room — In addition to controlling the ambient temperature in the house, the PRO-VISION can control the temperature and humidity conditions in an egg room. It can also keeps a tally of the number of eggs produced each day.

Operation Cost Monitoring — The controller can monitor the amperage draw of the outputs and give you daily reports of the operation costs.

History Menus — The history menus allow monitoring the sensor readings and verify the run time of some outputs. Below is a list of all available histories menus:

Minimum and maximum sensor readings:
- Ambient temperature ..... 400 days
- Inside temperature sensors ..... 7 days
- Outside temperature sensor ..... 400 days
- Relative humidity sensor ..... 400 days
- Static pressure sensor ..... 400 days
- Heater run time ..... 400 days
- Feeder run time ..... 400 days
- Water consumption ..... 400 days
- Mortality ..... 400 days

Alarm Management — The controller provides alarms for high-low temperatures, defective sensors and other system failures. It keeps in memory the 75 latest alarm conditions.

Password Protection — Different passwords levels can be enabled to restrict access to some menus of the controller.

Backup Battery — A backup battery allows the unit to keep time in case of a power failure.

USB Connector — Controller backups and updates can be made easily with a standard USB memory card.

Overload and Over-voltage Protection — Resettable fuses are provided at low-voltage inputs of the controller to protect its circuitry in the case of an overload or over-voltage.

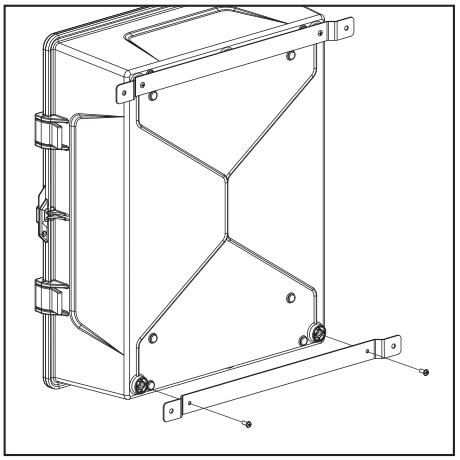
Computer Control — The controller can be connected to a computer, thus making it possible to centralize the management of information and diversify control strategies.

Test Mode — A test mode allows simulating temperature changes and verifying the controller's performances.

2. MOUNTING INSTRUCTIONS

2.1. Installing the Controller on the Wall

Fasten the two metal brackets on the mounting holes located behind the controller using four screws. Then, mount the enclosure on the wall using four other screws. Leave a clearance of at least 16" to the left of the enclosure to allow the cover to be removed for maintenance.



2.2. Connections

2.2.1. Main Wiring

Refer to the wiring diagram enclosed with this user's manual to connect the controller. Drill holes at the bottom of the enclosure to pass the wires and install watertight connectors to prevent water from entering in the enclosure. Do not make any holes at the side and top of the enclosure.

All wiring must be done by an authorized electrician and must comply with applicable codes, laws and regulations. Make sure power is off before doing any wiring to avoid electrical shocks and equipment damage.

⚠ ***Do not install rigid conduit into electrical knockouts. Only nylon cable glands are permitted for cable or wire fastening.***

⚠ ***The controller has no power-on switch. An external switch or circuit breaker shall be included in the building installation to interrupt power to L and N electric power lines. It shall be in close proximity to the equipment and within easy reach of the operator. It shall be marked as the disconnecting device for the equipment.***

2.2.2. Alarm Connection

There are two types of alarms on the market. One type activates when current is cut off at its input; the other type of alarm activates when current is supplied at its input. For an alarm of the first type, use the NC terminal as shown on the wiring diagram. For an alarm of the second type, use the NO terminal.

2.2.3. Sensor Inputs

Sensors operate at low voltage and are isolated from the supply. Make sure that sensor cables remain isolated from all high voltage sources. In particular, do not route the sensor cables through the same electrical knockout as other cables. Do not connect the shield from the sensor cable to a terminal or a ground.

Extending a sensor: Each sensor can be extended up to 500 feet (150 meters).

To extend a sensor: Use a shielded cable of outside diameter between 0.245 and 0.260 in (6.22 and 6.60 mm) (the cable dimensions should not be under 18 AWG) to ensure the cable entry is liquid tight. **Do not ground the shielding.**

It is preferable to solder the cable joint to ensure a proper contact between the two cables.

⚠ ***Do not run sensor cables next to other power cables. When crossing over other cables, cross at 90°.***

Defective sensors: An alarm is generated when a defective sensor is detected. Defective sensors are identified in the **"Alarm"** menu. Refer to chapter 13 for further information on the alarms.

2.2.4. 0-10V Output Connection

It is recommended to use a 18 to 22 AWG wire to connect the devices to the 0-10V outputs. This type of output can be used to connect various devices such as lights.

3. USER INTERFACE

3.1. Location of the Controls

Graphic LCD display — The large graphic LCD screen is used to display the parameters and menus.

Menu selectors — The menu selectors allow selecting a tab on screen.

Home key — This short-cut key provides access to the main menu.

Back — The *"Back"* key is used to go back to the previous menu.

Arrow keys — The arrow keys allow selecting a parameter on screen. The right and left arrow keys can also be used to move through the display by pages (left=page-up, right=page-down).

Enter — The *"Enter"* key is used to change the value of non-numerical parameters. Pressing this key makes a drop-down choice menu appear.

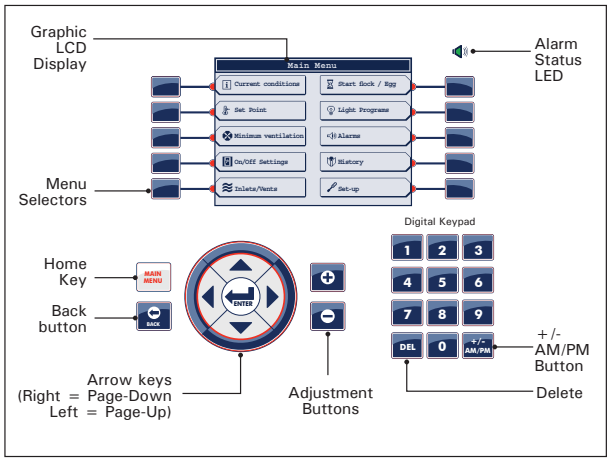
Adjustment buttons — The adjustment buttons allow increasing or decreasing the value of a parameter.

Delete — The delete key allows clearing the last digit that has been posted while editing a numerical value.

+/- & AM/PM button — This push-button allows entering a negative value and allows changing the AM/PM time indicator.

Digital keypad — The digital keypad is used to modify the value of numerical parameters.

Alarm Status LED — The alarm LED turns red when an alarm situation is active or turns green when there is no alarm.



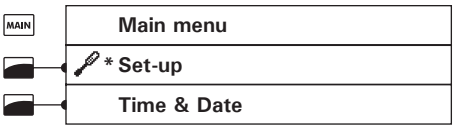
3.2. Adjusting a Parameter

When a parameter is selected, the controller gives indications about the way it can be modified at the bottom of the screen. A parameter can either be modified with the adjustment buttons, with the digital keypad or by pressing the *"Enter"* key and then selecting an item from a drop-down menu. Follow the instructions on screen to modify the value of a parameter.

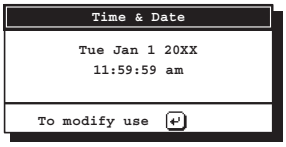
4. INSTALLATION SETUP

4.1. Setting the Time & Date

1. Select:



**A complete-access password may be required to access this menu (see sec. 4.2.1).*



Each of the following parameters must be set in turn.

2. Press *"Enter"* to start editing the month.
3. Use the navigation buttons to select the current month from the scrolling list.
4. Press *"Enter"* to continue.
5. The day is now selected. Use the adjustment buttons or the numerical keypad to change the current day.
6. Press *"Enter"* to continue.
7. The year is now selected. Use the +/- push-buttons or the numerical keypad to change the current year.
8. Press *"Enter"* to continue.
9. The time is now selected. Use the numerical keypad to set the time of day and use the AM/PM key to change the time indicator (if required).
10. Press *"Enter"* to validate the time and date.

4.2. Password

The controller can identify 6 users that are having different privilege levels. Below is a list of possible privileges:

History — This privilege provides access to all read-only menus such as the *"Current Conditions"*, *"Alarm"* & *"History"* menus. This level of privilege is automatically selected after 5 minutes of inactivity.

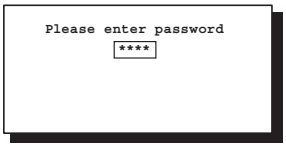
Settings — This privilege provides access to all menus except for the *"Set-up"* menu.

All — This password provides complete access to all menus of the controller.

Using password security is optional. Refer to the Set-up menu to enable/disable this protection (see section 4.4).

4.2.1. Entering a Password

If the password protection is used, the controller will prompt for a password each time a user that does not have the proper privileges tries accessing a protected menu. Refer to section 4.4 to enable or disable the password protection.



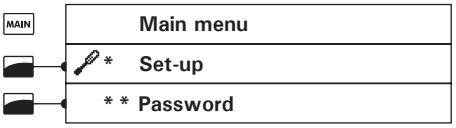
1. Type in your 4-digit password.

The message "Wrong Password" is displayed either if the posted password is incorrect or if the privileges associated with it are not sufficient to access the protected menu.

4.2.2. Changing / Retrieving a Password

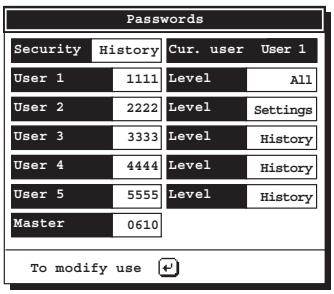
A user that has complete access to the controller can view and modify the passwords and privileges of all users.

1. Select:



**A complete-access password may be required to access this menu (see sec. 4.2.1).*

** * This menu is accessible if the password protection is enabled in the Set-up menu (see sec. 4.4).*



2. Set the following parameters:

Security — Select the level of privileges that must be selected after 5 minutes of inactivity (history, settings or all).

Cur. user — This is user currently logged in (for information only).

User 1-6 — Set the password of each user.

Choose easy-to-remember passwords and write them down in a safe place!

Master — Set the master password. This user automatically has complete access to all menus of the controller.

Level — Assign the desired level of privileges to each user. **NB. The Master user automatically has complete access to all menus.*

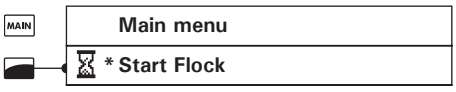
4.3. Controller Programs & Copy/Paste Function

Program definition: A programs is an assembly of settings (temperature settings, relay assignment, sensor assignment, etc.) that can be enabled at different moment of the breeding process. In all, the controller can use 5 different programs.

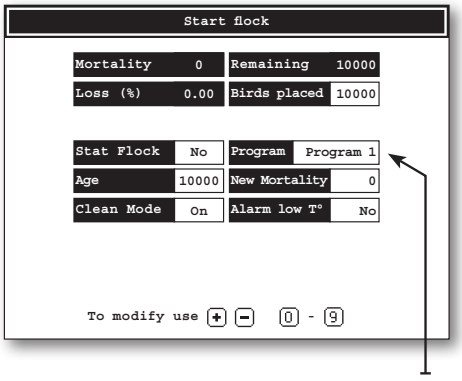
Refer to the Set-up menu to enable the desired number of programs (section 4.4).

Make sure the right program is selected before adjusting any parameter.

1. Select:



** A password may be required to access this menu (see section 4.2.1).*



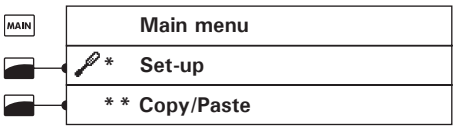
2. Set the following parameters:

Program — Activate the desired controller program. **Only the programs that are enabled in the Set-up menu can be used (see section. 4.4).*

Copying & Pasting Programs:

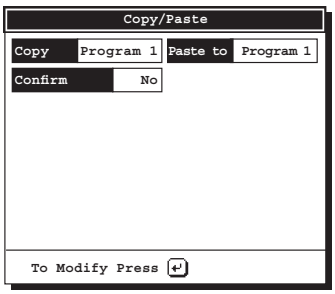
Use the copy-paste function to duplicate all parameter settings of a program onto another program. This avoids repeating the same programming sequence several times.

1. Select:



** A complete-access password may be required to access this menu (see sec. 4.2.1).*

** * Accessible if more than 1 program is enabled in the Set-up menu (see section 4.4).*



2. Set the following parameters:

Copy — Select the program that must be duplicated.

Paste to — Select the program on which the copied program will be pasted.

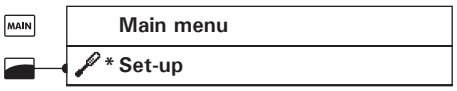
Confirm — Select *"Yes"* to start the copying process. The message *"Copy in progress"* is displayed. Wait until the data transfer is over.

4.4. Set-up Menu

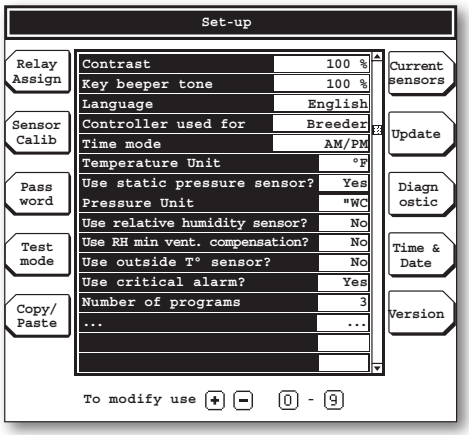
The following section shows how to customize the controller for your particular application. It shows how to enable and set the inputs & outputs of your controller. Normally, this setup needs to be done only once.

Hint: Use the right and left arrow keys to scroll the display by pages (right = page-down, left = page-up).

1. Select:



** A complete-access password may be required to access this menu (see sec. 4.2.1).*



2. Set the following parameters:

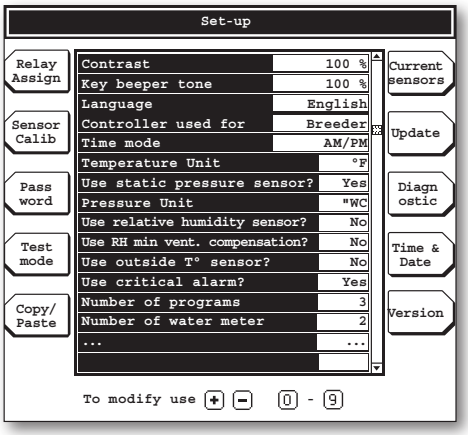
Contrast — Adjust the contrast of the LCD screen.

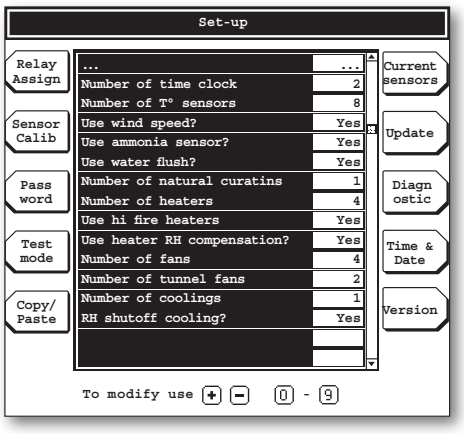
Key beeper tone — Adjust the volume of the keypad beeper.

Language — Select the desired language (English or Spanish).

Hint! Press and hold the main menu button for 5 seconds to switch from a language to the other.

Controller used for — The conroller can either be used in a breeder, broiler or turkey production facility. The breeder facility gives you access to additional parameters to monitor an egg room and the turkey option gives you access to the natural ventilation mode (natural curtain).





Temperature unit — Select the desired temperature units (Celsius or Fahrenheit)

Time mode— Select the desired time format (AM/PM or 24 hours).

Use static pressure sensor — Select *"Yes"* if a static pressure sensor is connected to the controller.

Pressure unit — Select the desired pressure units (inches of water ("WC) or Pascal (Pa)). ** This parameter is accessible if the static pressure sensor is enabled above.*

Use relative humidity (RH) sensor — Select *"Yes"* if a humidity sensor is connected to the controller. Note that if the controller operates in a breeder facility, the RH sensor is used to control the humidity level in the egg room; if the controller is located in a broiler or in a turkey facility, the RH sensor is used to control the humidity level in the house.

Use RH min vent compensation? — Select *"Yes"* for the controller to adjust On Time portion of minimum ventilation cycles as a function of the relative humidity level. Refer to section 12.1 for further information about this RH compensation method. ** This parameter is accessible if the controller is used in a broiler or turkey facility and if the RH sensor is enabled above.*

Use outside T° sensor — Select *"Yes"* if an outside temperature sensor is connected to the controller.

Use critical alarm? — Select *"Yes"* to enable the critical temperature alarm condition. ** This parameter is common to all programs of the controller.*

Number of programs — The controller can use several programs to control the temperature. Enable the desired number of programs (1 to 5 programs) ** This parameter is common to all programs of the controller.*

Number of water meters — Enable the desired number of water meters (0 to 2 meters). **This parameter is common to all programs of the controller.*

Water meter unit — If a water meter is enabled above, select the desired unit of water volume (gallons or liters). ** This parameter is common to all programs.*

Number of time clocks — Enable the proper number of time clocks (0 to 8 outputs).

Clock mode — The clock mode allows stopping a time clock at a specific time of the day *(Start/Stop mode)* or after a certain run time *(Start/Run mode)*. Select the desired operating mode of the time clocks. Note that the *"Start/Run"* option allows stopping the outputs with a little more precision since it allows stopping them by the seconds (contrarily to the *"Start/Stop"* mode which allows stopping them by the minutes). ** This parameter is accessible if at least 1 time clock is enabled above.*

Number of temperature sensors — Select the number of inside temperature sensors that are connected to the controller. The controller initially comes with 8 temperature inputs and 24 additional inputs can be used with the expansion cards (total of 32 sensors). ** This parameter is common to all programs of the controller.*

Use wind speed? — Select *"Yes"* if an anemometer is connected to the controller.

Use ammonia sensor? — Select *"Yes"* if an ammonia sensor is connected to the controller.

Use water flush? — Select *"Yes"* to use the water line flush. Refer to chapter 10 for further information on this feature.

Number of natural curtains — Enable the desired number of natural ventilation curtains (0 to 2 curtains). **This parameter is accessible if the controller is ued in a turkey production facility*

Number of water lines — Select the number of water line outputs in used (1 to 8 outputs). Note that up to 2 water lines can be connected to each output. ** This parameter is accessible if the water flush option is enabled above.*

Number of heaters — Enable the proper number of heating outputs. If the controller is used in a breeder or broiler production facility, the number of heaters ranges from 1 to 16 and can be doubled with the *"Hi Fire"* option; if the controller is used in a turkey production facility, the number of heaters ranges from 1 to 32.

Use heater RH compensation — Select *"Yes"* for the controller to activate the heaters in timer mode when the relative humidity level is too high. Refer to section 12.2 for further information about this RH compensation method. ** This parameter is accessible if the controller is used in a broiler or turkey facility and if at least 1 heater and relative humidity sensor are enabled above. It is also common to all programs of the controller.*

Use hi fire heaters ? — Select *"Yes"* to enable the hi fire option for the heating outputs. This function allows doubling the number of heating stages (refer to chapter 7 for further information on this function). ** This parameter is common to all programs and is only accessible if the controller is used in a breeder or broiler facility.*

Number of fans — Enable the proper number of lateral fans (1 to 5 fans).

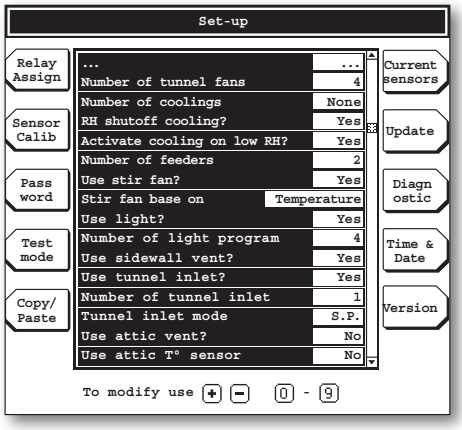
Number of tunnel fans — Enable the proper number of tunnel fans (1 to 20 tunnel fans).

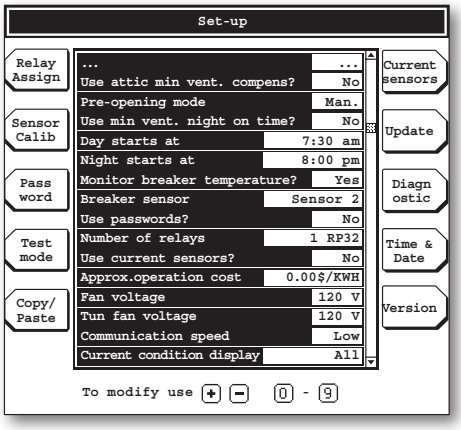
Number of coolings — Enable the proper number of cooling outputs (0 to 6 outputs).

RH shutoff cooling— Select *"Yes"* for the controller to disable the cooling outputs when the humidity level gets too high. Refer to sec-

tion 12.3 for further information about this RH compensation method. * *This parameter is accessible if the controller is used in a broiler or turkey facility and if at least 1 cooling output and relative humidity sensor are enabled above. It is also common to all programs of the controller.*

Activate cooling low RH — Select *"Yes"* for the controller to activate the cooling outputs when the humidity level gets too low. Refer to section 12.3 for further information about this RH compensation method. * *This parameter is accessible if the controller is used in a broiler or turkey facility and if at least 1 cooling output and relative humidity sensor are enabled above. It is also common to all programs of the controller.*





Number of feeders — The controller has 4 inputs that can be used to monitor the run time of feeder motors. Enable the number of feeders to be monitored (0 to 4 feeders).

Use stir fan? — Select *"Yes"* to enable the stir fan output.

Stir fan base on — If the stir fan output is enabled above, specify its operating mode: select *"Temp"* if it operates within a certain temperature range or select *"MinV"* if it only operates in minimum ventilation (refer to section 6.7 for further information on this function).

Use light? — Select *"Yes"* to enable the 0-10V light output.

Number of light programs — If the light output is enabled above, select the desired number of light programs (0 to 9 programs).

Use sidewall vent — Select *"Yes"* to enable the sidewall vent output. * *This parameter is accessible if the static pressure sensor is enabled above.*

Use tunnel inlet — Select *"Yes"* to use a tunnel inlet.

Number of tunnel inlet — If the tunnel inlet option is enabled above, select the number of tunnel outputs in use (1 or 2 tunnel inlets).

Tunnel inlet mode — Tunnel inlets can either move according to the level of static pressure (S.P.) or according to the room temperature. Select the desired operating mode. * *This parameter is accessible if at least 1 tunnel inlet is enabled above.*

Use attic vent? — Select *"Yes"* to enable the attic vent output.

Use attic T° sensor? — Select *"Yes"* if a temperature sensor is present in the attic. * *This parameter is accessible if the attic vent is enabled above.*

Use attic min vent. compens? — In order to extract air from the attic, the controller can increase the operating time of the fans, in minimum ventilation, when temperature is suitable in the attic. Select *"Yes"* to enable this compensation function (refer to section 6.5 for further information on this function). * *This parameter is accessible if the attic sensor is enabled above. It is also common to all programs of the controller.*

Vents pre-opening mode — The pre-opening delay is used to pre-open the vents (sidewall & attic vents) before activating the fans at the startup of each minimum ventilation cycle. The controller can use a steady pre-opening delay or can set this delay automatically. Select *"Auto"* to use an automatic pre-opening delay or select *"Man."* to set the delay yourself. * *This parameter is accessible if the attic vent or sidewall vent is enabled above.*

Use min. vent. night on time ? — The controller can use different minimum ventilation timer at night. Select *"Yes"* to use particular night settings.

Day starts at — Set the time at which the day timer starts being used in minimum ventilation. * *This parameter is accessible if the "Night min. vent. on time" option is enabled above.*

Night starts at — Set the time at which the night timer starts being used in minimum ventilation. * *This parameter is accessible if the "Night min. vent. on time" option is enabled above.*

Monitor breaker temperature — Select *"Yes"* if a temperature sensors is used to monitor the temperature of the main breaker. The controller will set off an alarm if the reading of this input gets higher than acceptable temperature limit. * *This parameter is common to all programs of the controller.*

Breaker sensor — If the breaker monitoring function is enabled above, specify which of the temperature sensors is used for this purpose (sensor 1-8). * *This parameter is common to all programs of the controller.*

Use password? — Select *"Yes"* to enable the password protection or *"No"* to disable it. * *This parameter is common to all programs of the controller.*

Number of relays — Select the proper relay panel or combination of relay panels in use: 1 RP-32, 1 RP-40, 1 RP-40 & RP-16, 2 RP-32, 2 RP-40, 3 RP-32 or 3 RP-40, 4 RP-32. * *This parameter is common to all programs of the controller.*

Use current sensor? —Select *"Yes"* if at least 1 output uses a current sensor.

Approximative operation cost — The controller can calculate the approximate operating cost of the outputs that are using a current sensor. Select the going rate per kilowatt-hour.* *This parameter is accessible the current sensor is enabled above. It is also common to all programs of the controller.*

Output voltage — Specify what voltage each output uses: 108, 120 or 240 Volts.

Communication speed — The communication speed provided by the controller depends on the type of relay panels you are using. Using the high-speed communication mode allows connecting more relay panels and current sensors without lowering the communication speed of the controller. Note that the high-speed mode can only be used if your application exclusively contains relay panels with the "CS" technology (the letters "CS" are written on the faceplate of a relay panel that uses this technology). Select *"High"* if your application only uses relay panels with the "CS" technology or select *"Low"* if your application contains 1 or more relay panels that do not use this technology. **Refer to chapter 16 to see the communication rate currently being used by your controller.*

Current condition display — Select what information needs to be displayed on current condition menu: select *"All"* for the controller to display all possible pieces of information or select *"W/O heat"* or *"W/O Prb,Heat"* to remove the heater run time and/or the reading of individual temperature sensors from the current condition display. * *This parameter is common to all programs of the controller.*

4.5. Sensor Assignment

The selection of sensors must be made separately for each controller program in use.

4.5.1. Assigning the Sensors

The controller outputs either run according to the average reading of their own selection of sensors or according to a pre-defined group of sensors (such as the average temperature). The table below gives a list of all outputs and tells according to which selection of sensors each one of them operates.

Outputs	Selection of sensors
Heater 1-32	The selection of sensors must be made separately for each of these output.
Heat 1-16 Hi Fire	
Cooling 1-6	
Natural curtains 1-2	
Egg room heater	
Egg room cooling	
Fans 1-5	In lateral ventilation, these outputs operate according to the *"Average T°"* sensor group. In tunnel ventilation, they operate according to the sensors that are associated with the tunnel fan output in use.
Stir Fan	
Tunnel Fans 1-20	

Non-brood zones: A non-brood zone is an unused part of the house. This type of zone is automatically created when a heater is only being controlled by a selection of sensors that are not used to measure the average room temperature. Refer to section 4.8 for further information about non-brood zones.

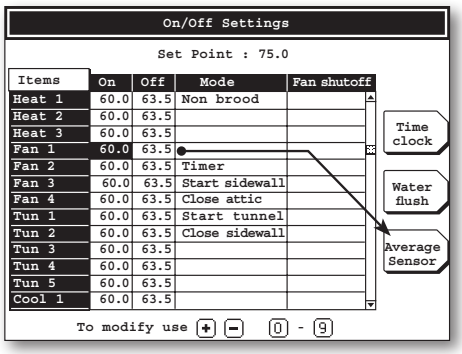
1. Select:

MAIN **Main menu**

*** On / Off Settings**

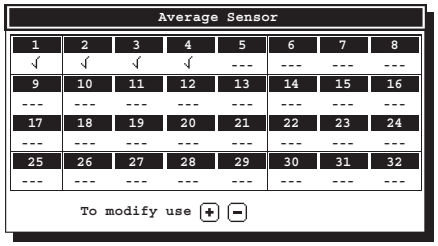
** A password may be required to access this menu (see section 4.2.1).*

2. A table showing all outputs in use is displayed. Select the desired output with the arrow keys.


On/Off Settings
Set Point : 75.0
Items | On | Off | Mode | Fan shutoff
Heat 1 60.0 63.5 Non brood
Heat 2 60.0 63.5
Heat 3 60.0 63.5
Fan 1 60.0 63.5
Fan 2 60.0 63.5 Timer
Fan 3 60.0 63.5 Start sidewall
Fan 4 60.0 63.5 Close attic
Tun 1 60.0 63.5 Start tunnel
Tun 2 60.0 63.5 Close sidewall
Tun 3 60.0 63.5
Tun 4 60.0 63.5
Tun 5 60.0 63.5
Cool 1 60.0 63.5
Time clock
Water flush
Average Sensor
To modify use + - 0 - 9

When an output is selected, the controller displays a sensor assignment tab at the right hand side of the screen (the tab is associated with the chosen output). If the output operates according to a group of sensors, the tab leads to the sensor assignment menu of the group; if it operates according to its own selection of sensors, the tab leads to the sensor assignment menu of the chosen output.

3. Select the sensor assignment tab with the menu selectors.

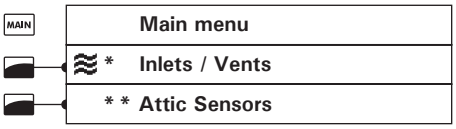


4. Use the +/- buttons to put a check mark in the box of the temperature sensors that are used to control the selected output (or that forms the selected group of sensor).

4.5.2. Selecting the Attic Sensor

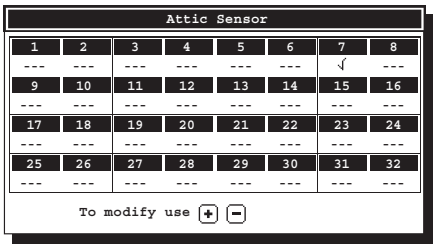
If a temperature sensor is present in the attic, please select which input number the attic sensor uses.

1. Select:



** This menu is accessible if at least 1 inlet is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*

** * This tab is accessible if the attic sensor input is enabled in the Set-up menu (see section 4.4).*



2. Use the +/- buttons to put a check mark in the box of the temperature sensor located in the attic.

4.5.3. Egg Room Sensors

If it is used in a breeder facility, the controller automatically enables an egg room and controls up to 3 outputs in this room (heater, cooling & humidity outputs). Each of these outputs operates according to a specific temperature sensor. Please refer to chapter 11 of this manual to specify which sensor is used in the egg room.

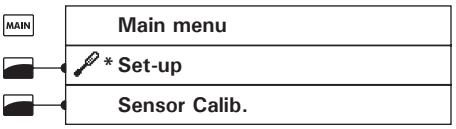
4.5.4. Main Breaker Sensor

A temperature sensor can be used to monitor the temperature of the main breaker. The controller will set off an alarm whenever the reading of this temperature input gets too high. Refer to the Set-up menu in section 4.4 to select the temperature sensors used for this purpose (if applicable).

4.6. Calibrating the Inputs

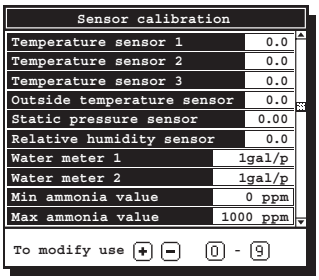
This section shows how to calibrate the reading of the sensor inputs in order to obtain accurate and uniform readings from all sensors. It also shows how to calibrate the flow rate of the water meters.

1. Select:



** A complete-access password may be required to access this menu (see sec. 4.2.1).*

A table showing the calibration values of each sensor input is displayed:


Sensor calibration
Temperature sensor 1 0.0
Temperature sensor 2 0.0
Temperature sensor 3 0.0
Outside temperature sensor 0.0
Static pressure sensor 0.00
Relative humidity sensor 0.0
Water meter 1 1gal/p
Water meter 2 1gal/p
Min ammonia value 0 ppm
Max ammonia value 1000 ppm
To modify use + - 0 - 9

2. If required, calibrate the reading of the sensors. Note that the calibration settings are common to all programs of the controller.

Use the +/- key to enter a negative offset.

Temperature (indoor & outdoor) — The reading of the inside and outside temperature sensors can be adjusted of ±10 °F (±5.6 °C).

Static pressure sensor — The reading of the static pressure sensor can be adjusted of ±0.10 "WC (±25 Pa). **This parameter is accessible if the static pressure sensor is enabled in the Set-up menu (see section 4.4).*

Relative humidity sensor — The reading of humidity sensor can be adjusted of ±10%. **This parameter is accessible if the RH sensor is enabled in the Set-up menu (see section 4.4).*

Water meter calibration — Specify the flow rate of each water meter. It ranges from 1 to 100 gallons (or liters) per pulse. **This parameter is accessible if a water meter is enabled in the Set-up menu (see section 4.4).*

Min/max ammonia values— In order to use the ammonia sensor, you must specify the minimum and maximum ammonia levels that can be detected by the sensor (in ppm). **This parameter is accessible if the ammonia sensor is enabled in the Set-up menu (see section 4.4).*

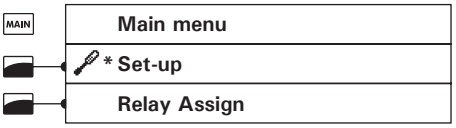
4.7. Relays

4.7.1. Relay Assignment

The controller activates the loads by means of external relay panels. In all, it can control up to 128 relays. This section shows how to specify the function of each relay. Please refer to the wiring diagram enclosed with your relay panel to connect the loads and to assign the ID numbers of the panels.

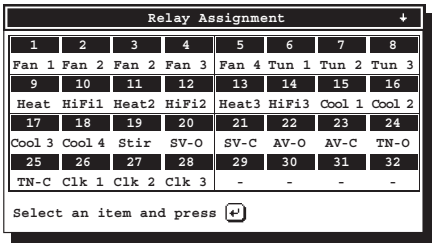
A worksheet is available at the end of this manual to write down the function of each relay.

1. Select:

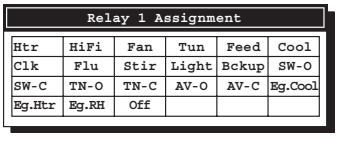


** A complete-access password may be required to access this menu (see sec. 4.2.1).*

The function of each relay is diplayed.

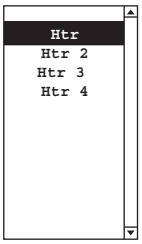

Relay Assignment
1 2 3 4 5 6 7 8
Fan 1 Fan 2 Fan 2 Fan 3 Fan 4 Tun 1 Tun 2 Tun 3
9 10 11 12 13 14 15 16
Heat HiFi1 Heat2 HiFi2 Heat3 HiFi3 Cool 1 Cool 2
17 18 19 20 21 22 23 24
Cool 3 Cool 4 Stir SV-O SV-C AV-O AV-C TN-O
25 26 27 28 29 30 31 32
TN-C Clk 1 Clk 2 Clk 3 - - - -
Select an item and press ↵

2. Use the arrow keys to select the desired relay number and then press *"Enter"* to change its function. A table showing all possible functions prompts on screen.



Use the arrow keys to select the type of output being controlled by the relay and then press *"Enter"*.

3. If the controller uses many outputs of the same type, choose the output number from the drop-down menu.



4. Proceed the same way to assign a relay to each output in use.

Below is a list of all possible relay functions:

Relay Functions	
Display	**Meaning**
Htr	Heater
Hi #x; #xx	Hi Fire heater #x or Heater #x *(depending if your controller uses the hi-fire option or if it uses 32 relays).*
Fan	Fan
Tun	Tunnel fan
Feed	Feeder[1]
Cool	Cooling output
Clk	Time clock
Flu	Water flush output
Stir	Stir fan
Light	On/Off light output
Bckup	Backup device
SW-O[2] /SW-C[2]	Sidewall vent open/close relay
AV-O[2] / AV-C[2]	Attic vent open/close relay
TN-O[2] / TN-C[2]	Tunnel inlet open/close relay
Low SP	Low pressure alarm device
Eg.Htr	Egg room heater
Eg.Cool	Egg room cooling output
Eg.RH	Egg room humidity output

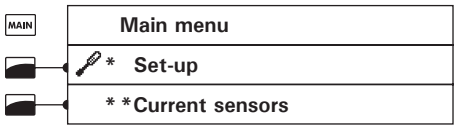
1. Feeder relays are used to stop the feeders when a feeder run time alarm occurs. These relays are normally closed (NC) relays which open when their respective feeder exceeds a user-defined run time.

2. Some relays on the relay panels have specially been designed to connect actuators (an actuator relay has an "Open/Off/Close" marking instead of an "On/Off" marking on the faceplate of the panel). When actuators are connected to these relays, their open and close relays can never be activated at the same time.

4.7.2. Relays with Current Sensors

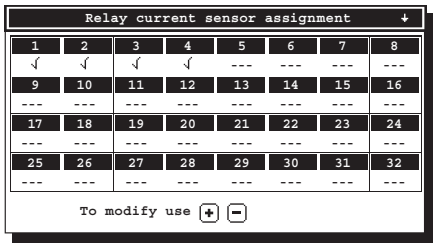
The controller can monitor the current flow on each of its outputs. The following procedure shows how to identify the outputs that are using a current sensor.

1. Select:



** A complete-access password may be required to access this menu (see sec. 4.2.1).*

*** This menu is accessible if a current sensor is enabled in the Set-up menu (see section 4.4).*



2. Use the +/- buttons to put a check mark in the box of the relays that are using a current sensor.

4.8. Non-Brood Zones & Clean Mode

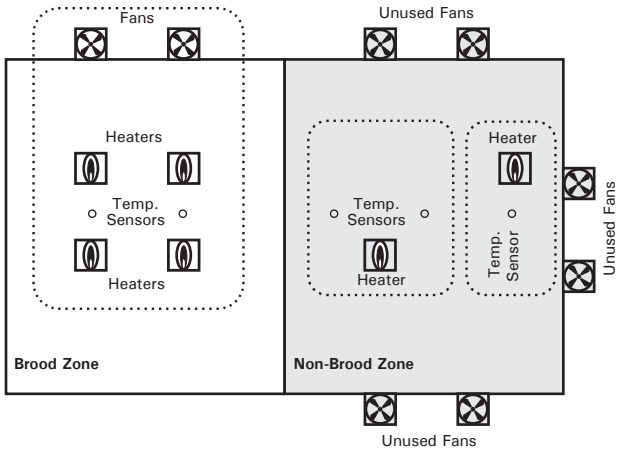
Definition of a Non-Brood Zone: A non-brood zone is an unused part of the house. This type of zone is automatically created when a heater exclusively uses temperature sensors that are not used to measure the average room temperature. Non-brood zones are generally not ventilated and only have some heaters to ensure minimum heat.

Heaters in Non-Brood Zones: The operating temperatures of the heaters in non-brood zones are related to the *"Non-Brood temperature set point"* rather than on the regular temperature set point. This means that if the non-brood temperature set point changes, the operating temperatures of non-brood heaters will be adjusted consequently. Refer to section 5.1 to set the *"Non-Brood temperature set point".*

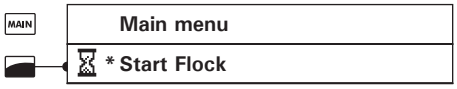
Definition of the Clean Mode: The clean mode is used to interrupt regular operations of the controller when the whole house is empty. When this mode is enabled, the controller simply provides a minimum level of heat in the house; the heaters operate according to their non-brood settings.

Low Temperature Alarms in Clean Mode: The controller can sound an alarm if the temperature gets too low while it operates in clean mode (or when the temperature gets too low in an empty zone). Once it is enabled, refer to section 13.2 to adjust the low temperature limit.

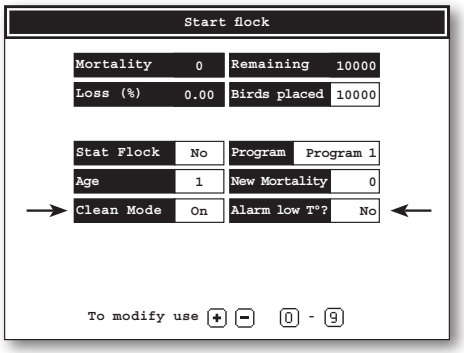
Figure: Heaters in Non-Brood Zones



1. Select:



** A password may be required to access this menu (see section 4.2.1).*



2. Set the following parameters:

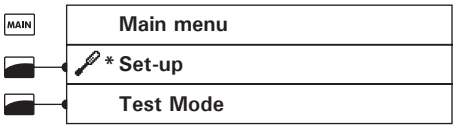
Clean Mode — Select *"On"* to enable the clean mode or select *"Off"* to disable it.

Alarm low T° — Select *"Yes"* for the controller to set off an alarm when the average temperature gets lower than the *Non Brood Set Point* while the controller is in clean mode. **This parameter is accessible if the clean mode is enabled above or if an empty zone is used.*

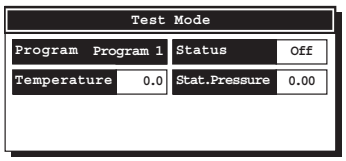
4.9. Test Mode

The test mode is used to simulate changes in the ambient temperature and verify the controller's performance. When the test is enabled, all outputs of the controller operate according to the simulated temperature. The test automatically ends after 15 minutes of inactivity or if the user deactivates it manually.

1. Select:



** A complete-access password may be required to access this menu (see sec. 4.2.1).*



2. Set the following parameters:

Program # — This is the program that is currently used by the controller. It is displayed for information only. **Refer to section 4.3 to change the program in use.*

Status — Select *"On"* to enable the test mode or select *"Off"* to disable it.

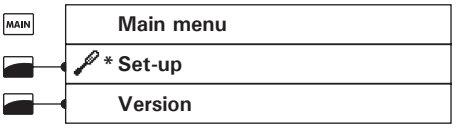
Temperature — Set the simulated room temperature to the desired value. ** This parameter is accessible if the test mode is enabled above.*

Stat. Pressure — This is the current level of static pressure. It is displayed for information only and cannot be modified manually. ** This parameter is accessible if the test mode is enabled above and if a static pressure sensor is enabled in the Set-up menu (see section 4.4).*

4.10. Version

The version menu gives the version number of the program used by the controller. This piece of information is useful to get technical support.

1. Select:



** A complete-access password may be required to access this menu (see sec. 4.2.1).*

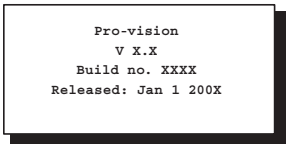
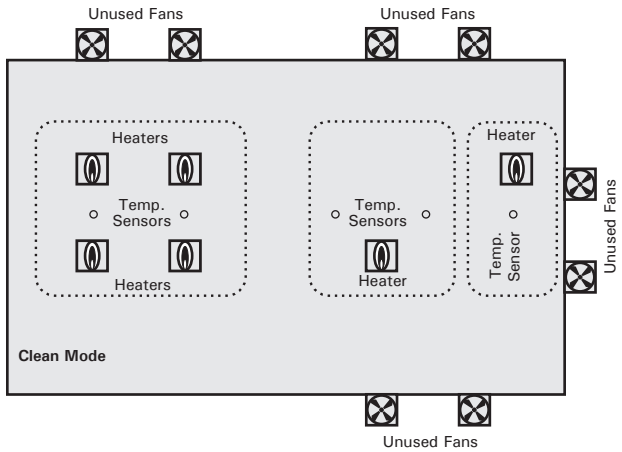


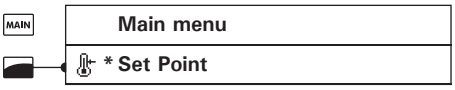
Figure: Heaters in Clean Mode



5. SET POINTS

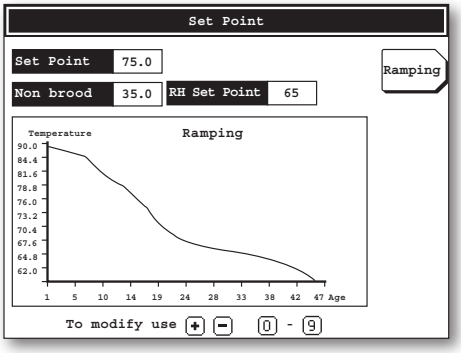
5.1. Temperature & RH Set Points

1. Select:



** A password may be required to access this menu (see section 4.2.1).*

The current temperature & relative humidity (RH) set points are displayed along with a graph of the temperature set point ramp. Refer to section 5.2 for further information about this ramp.



2. Set the following parameters:

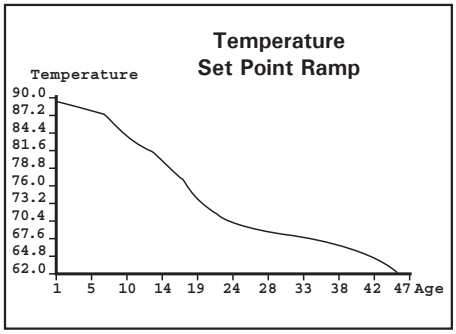
Set Point — The *Set Point* is the target temperature in the room. The operating temperatures of most outputs are based on this value, which means that if the set point changes, the start & stop temperatures of the outputs are adjusted accordingly. Set the temperature set point to the desired value. Also note that if the set point ramp is enabled, the controller automatically defines this value as a function of the animal age (see section 5.2). ** This parameter is common to all programs.*

Non brood — Set the target temperature used in the non-brood zones. **Refer to section 4.8 for further information about non brood zones.*

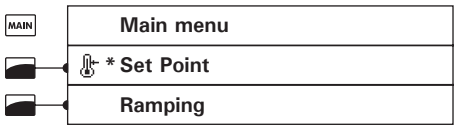
RH Set Point — The relative humidity (RH) set point is the target level of relative humidity in the room. It is only used if the controller is used in a broiler or turkey facility. If the humidity level in the room gets higher than this set point, the controller can enable different compensation functions to lower it down (see chapter 12). Set the relative humidity set point to the desired value. ** This parameter is accessible if the controller is used in a broiler or turkey facility. Refer to the Set-up menu to select the type of facility (breeder, broiler or turkey).*

5.2. Set Point Ramp

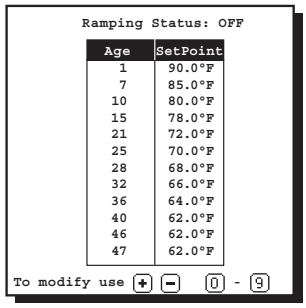
The controller can automatically adjust the temperature set point over time with a ramp. The set point ramp is composed of 12 steps and each step associates a temperature set point with an animal age. Once the ramp is enabled, the controller changes the temperature set point every hour in a linear fashion between consecutive steps of the ramp. When it reaches the last step, the controller keeps using the last temperature set point until the end of the flock.



1. Select:



** A password may be required to access this menu (see section 4.2.1).*



2. Set the following parameters. ** The parameters below are common to all programs.*

Ramping Status — This is the status of the set point ramp. Select *"On"* to enable it or select *"Off"* to disable it.

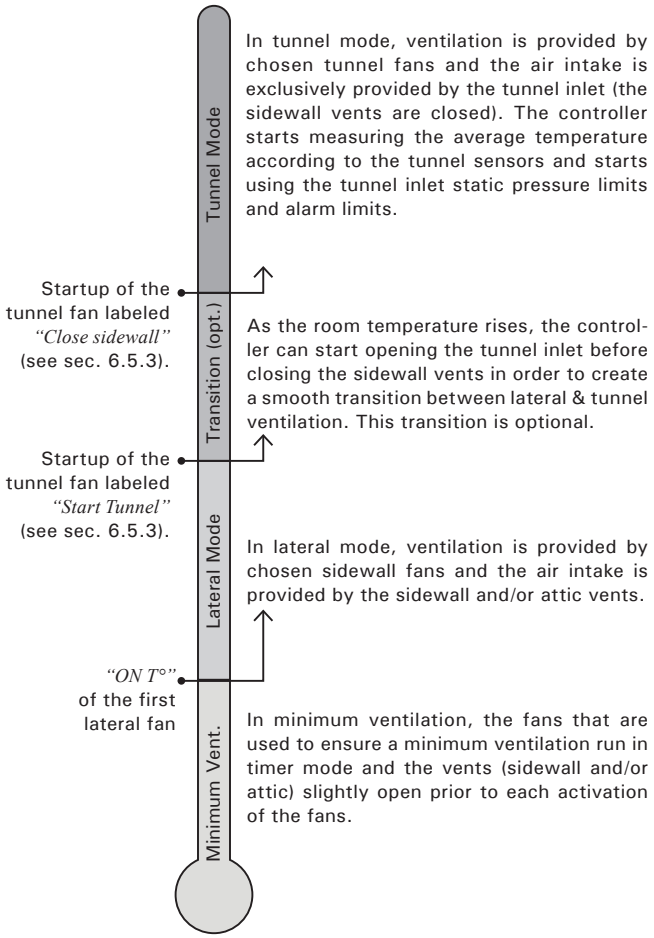
Age — Set the age at which each step starts. This parameter ranges from -5 to 450 days (negative values are used to prepare the house before letting the animals in).

Temperature — Assign a temperature set point with each step of the ramp. If you don't need 12 different steps, repeat the last temperature for each unnecessary step.

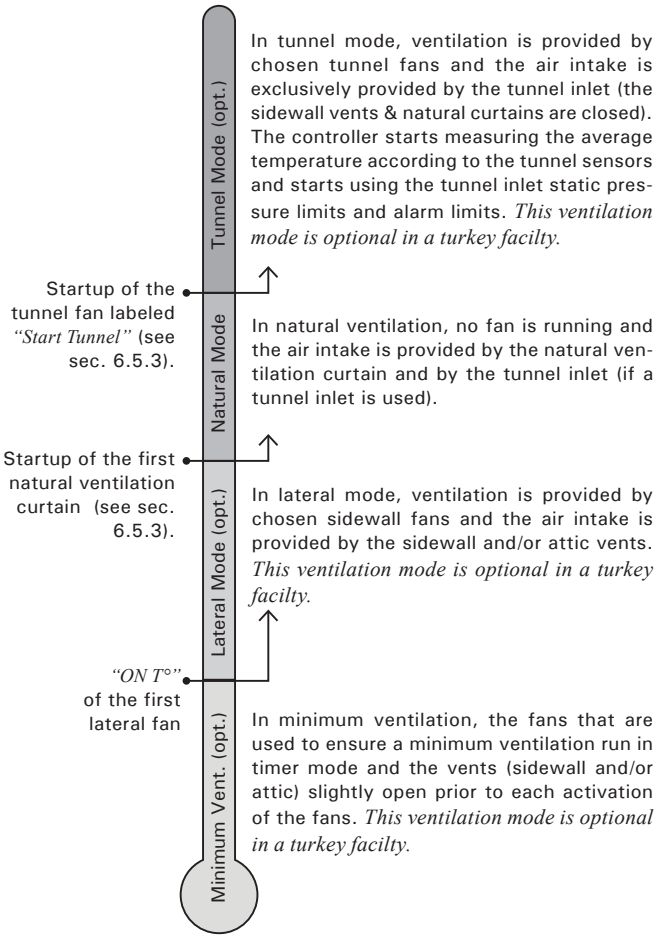
6. VENTILATION & COOLING

6.1. Overview of the Ventilation Concepts

Ventilation Concept in a Breeder or Broiler Facility


Tunnel Mode
Transition (opt.)
Lateral Mode
Minimum Vent.
In tunnel mode, ventilation is provided by chosen tunnel fans and the air intake is exclusively provided by the tunnel inlet (the sidewall vents are closed). The controller starts measuring the average temperature according to the tunnel sensors and starts using the tunnel inlet static pressure limits and alarm limits.
Startup of the tunnel fan labeled "Close sidewall" (see sec. 6.5.3).
As the room temperature rises, the controller can start opening the tunnel inlet before closing the sidewall vents in order to create a smooth transition between lateral & tunnel ventilation. This transition is optional.
Startup of the tunnel fan labeled "Start Tunnel" (see sec. 6.5.3).
In lateral mode, ventilation is provided by chosen sidewall fans and the air intake is provided by the sidewall and/or attic vents.
"ON T°" of the first lateral fan
In minimum ventilation, the fans that are used to ensure a minimum ventilation run in timer mode and the vents (sidewall and/or attic) slightly open prior to each activation of the fans.

Ventilation Concept in a Turkey Facility


Tunnel Mode (opt.)
Natural Mode
Lateral Mode (opt.)
Minimum Vent. (opt.)
In tunnel mode, ventilation is provided by chosen tunnel fans and the air intake is exclusively provided by the tunnel inlet (the sidewall vents & natural curtains are closed). The controller starts measuring the average temperature according to the tunnel sensors and starts using the tunnel inlet static pressure limits and alarm limits. This ventilation mode is optional in a turkey facilty.
Startup of the tunnel fan labeled "Start Tunnel" (see sec. 6.5.3).
In natural ventilation, no fan is running and the air intake is provided by the natural ventilation curtain and by the tunnel inlet (if a tunnel inlet is used).
Startup of the first natural ventilation curtain (see sec. 6.5.3).
In lateral mode, ventilation is provided by chosen sidewall fans and the air intake is provided by the sidewall and/or attic vents. This ventilation mode is optional in a turkey facilty.
"ON T°" of the first lateral fan
In minimum ventilation, the fans that are used to ensure a minimum ventilation run in timer mode and the vents (sidewall and/or attic) slightly open prior to each activation of the fans. This ventilation mode is optional in a turkey facilty.

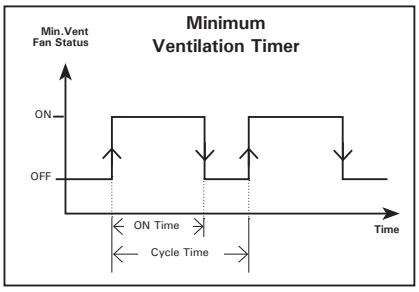
6.2. Minimum Ventilation

Minimum ventilation cycles are activated when the room temperature is lower than the start temperature of the first fan stage. Running the fans even though ventilation is not required for reducing the room temperature is useful to reduce humidity levels and supply oxygen to the room. It also prevents the fans from freezing in winter.

Minimum ventilation can only be used if at least 1 fan output is enabled in the Set-up menu (see section 4.4).

6.2.1. Minimum Ventilation Timer

The minimum ventilation timer is composed of an *"On Time"* and of a *"Cycle Time"*. The fans run during the *"On Time"* and then stop until the end of the *"Cycle Time"*. This timer is common to all programs of the controller.



Automatic adjustment of the minimum ventilation timer as a function of relative humidity: The controller can automatically increase the *"On Time"* portion of the minimum ventilation timer as the humidity level increases. Refer to section 12.1 for further information about this RH compensation function.

The controller can automatically extend the cycle time in order to pre-open the vents.

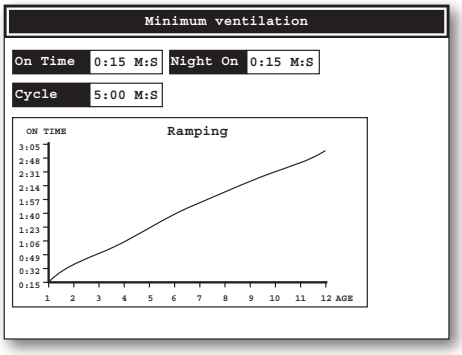
1. Select:

MAIN → **Main menu** → ⊗ *** Minimum Ventilation**

** A password may be required to access this menu (see section 4.2.1).*

The minimum ventilation timer is displayed along with the *On Time Ramping* graph. Refer to section 6.2.2 for further information about this ramp.

2. Set the following parameters:



On Time — Set the *"On Time"* of the minimum ventilation timer. Note that if the minimum ventilation ramp is enabled, the controller automatically defines this value as a function of the animal age (see section 6.2.2).

Cycle — Set the cycle time of the minimum ventilation timer. Note that the cycle time must be longer than the *"On Time"*.

Night On — Set the *"On Time"* of the minimum ventilation night timer. If the *"On Time Ramping"* function is used, the controller automatically defines this value as a function of animal age.

6.2.2. Min Ventilation Timer Ramp

The controller can automatically adjust the *"On Time"* portion of the minimum ventilation timer with time. The minimum ventilation ramp is composed of 12 steps and each step associates an *On Time* with an animal age. Once the ramp is enabled, the controller changes *"On Time"* portion of the minimum ventilation cycles every hour in a linear fashion between consecutive steps of the ramp. When it reaches the last step, the controller keeps using the last *"On Time"* until the end of the flock.

Night Ramp: The minimum ventilation ramp can be configured differently for nighttime. Refer to the Set-up menu to enable or disable the night settings (see section 4.4).

1. Select:

MAIN → **Main menu** → ⊗ *** Minimum Ventilation** → **Ramping**

** A password may be required to access this menu (see section 4.2.1).*

2. Set the following parameters. **The parameters below are common to all programs.*

Ramping Status — This is the status of the minimum ventilation ramp. Select *"On"* to enable it or select *"Off"* to disable it.

Age — Set the age at which each step starts. This parameter ranges from -5 to 450 days (negative values are used to prepare the house before letting the animals in).

On — Assign a minimum ventilation *"On Time"* with each step of the ramp. If you don't need 12 different steps, repeat the last *"On Time"* for each unnecessary step.

Night On — If a different night ramp is used, assign a night *"On Time"* for each step of the curve. If you don't need 12 different steps, repeat the last *"On Time"* for each unnecessary step. ** This parameter is accessible if the "Night Min. Vent." option is enabled in the Set-up menu (see section 4.4).*

6.2.3. Minimum Ventilation Fans

6.2.3.1. Fan Selection

The minimum ventilation cycles are ensured by a user-defined selection of fans and/or tunnel fans. In order to identify a fan/tunnel fan that is used in minimum ventilation, set its operating mode to *"Timer"* or *"Tmr, clo attic"* in the *"On/Off Settings"* menu. Refer to the lateral or tunnel fan sections of this manual to assign these fan operating modes (sections 6.5.1 & 6.5.3).

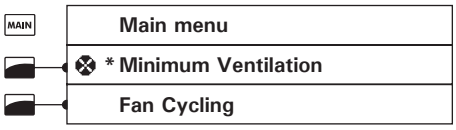
6.2.3.2. Fan Cycling

In minimum ventilation, the controller can make a rotation of the fans selection between consecutive cycles. This rotation allows running the fan motors evenly and regularly. In order to use fan cycling, you must specify how many fans must be activated simultaneously and specify after how many cycles they must switch.

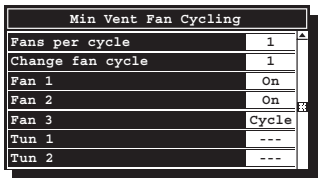
Here is an example of fan cycling with 4 fans. In this example 2 fans are used simultaneously and a switch is made every 3 cycles:

	Fan 1	Fan 2	Fan 3	Fan 4
1st step: 3 cycles	ON	ON	OFF	OFF
2nd step: 3 cycles	OFF	ON	ON	OFF
3rd step: 3 cycles	OFF	OFF	ON	ON
4th step: 3 cycles	ON	OFF	OFF	ON

1. Select:



** A password may be required to access this menu (see section 4.2.1).*



2. Set the following parameters:

Fans per cycle — Select how many cycling fans must be activated simultaneously in a minimum ventilation cycle. Only the fans that are labeled *"Cycle"* will make a rotation from one minimum ventilation cycle to the other. The fans that are labeled *"On"* are the regular minimum ventilation fans used in all minimum ventilation cycles.

Change fan cycle — Select after how many minimum ventilation cycles the selection of cycling fans must switch. This parameter ranges from 1 to 1,000 cycles.

Fan#x / Tun#x— To use a fan/tunnel fan according to the above fan cycling parameters, set its status to *"Cycle"*. **Note that the status of all regular minimum ventilation fans cannot be set to Off (- - -).*

6.2.4. Air Intake in Min Ventilation

• If the attic vent <u>is not</u> used:
If the attic vent is not used, the air intake in minimum ventilation is exclusively provided by the sidewall vent: the vent opens during the *"Vent Pre-opening"* delay at the startup of each cycle and then moves according to its respective static pressure limits until the fans stop. When they do, the sidewall vent closes and stays closed until the beginning of the next cycle.

• If the attic vent is used:

a) With the attic compensation:
<u>i. When the compensation is ongoing</u>, the air intake in minimum ventilation is exclusively provided by the attic vent (the sidewall vent stays closed). The attic vent opens during the *"Vent Pre-opening"* delay at the startup of each cycle and then moves according to its respective static pressure limits until the fans stop. When they do, the attic vent closes and stays closed until the beginning of the next cycle.

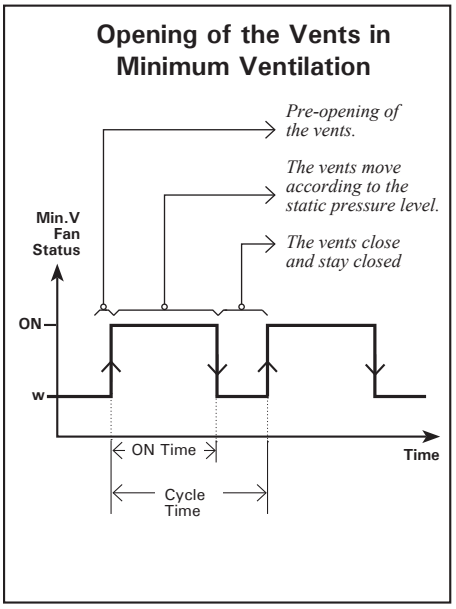
<u>ii. When the compensation is over,</u> the air intake in minimum ventilation becomes provided by both vents (attic & sidewall): the vents open during the *"Vent Pre-opening"* delay at the startup of each cycle and then move according to the sidewall vent's static pressure limits until the fans stop. When the fans stop, both vents close and stay closed until the beginning of the next cycle.

b) Without the attic compensation:
If the attic vent is used but the attic compensation function is disabled, the air intake in minimum ventilation is exclusively provided by the attic vent (the sidewall vent stays closed). The attic vent opens during the *"Vent Pre-opening"* delay at the startup of each cycle and then moves according to its respective static pressure limits until the fans stop. When they do, the attic vent closes and stays closed until the beginning of the next cycle.

Pre-Opening of the Vents: The pre-opening delay is used to pre-open the vents (sidewall & attic vents) before activating the fans at the startup of each minimum ventilation cycle. The controller can use a steady pre-opening delay or can set this delay automatically. Refer to the Set-up menu in section 4.4 to enable/disable the automatic pre-opening function and refer to section 6.3.2 to set this delay if the automatic function is not used.

Automatic Pre-Opening Delays: If the automatic pre-opening function is used, the controller refers to the time it actually took for the vents to reach the desired pressure range the last time they had to open and then sets the next pre-opening delay accordingly.

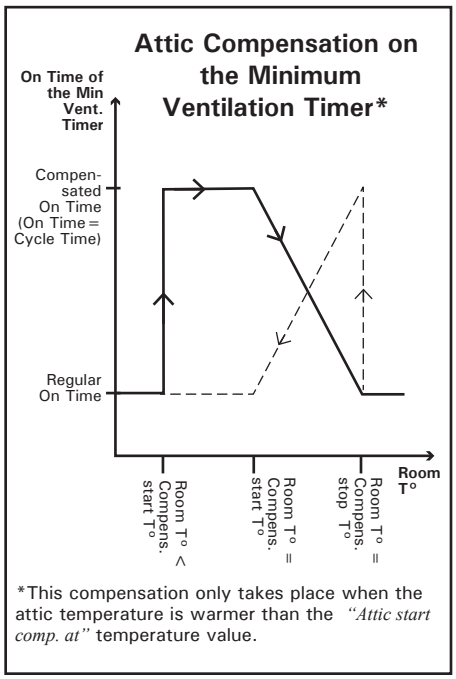
Refer to section 6.3.2 to set the pre-opening delay & the static pressure limits.



Attic Compensation on the Min Ventilation Air Intake

When the PRO-VISION operates in minimum ventilation and the attic temperature is warm enough, the controller can extract the warm air from the attic by increasing the operating time of the fans. When this compensation is on, the controller automatically adjusts the *"On Time"* portion of the minimum ventilation timer as a function of the room temperature.

If the room temperature is cooler than the *"Attic start comp at"* value and the attic temperature is equal or higher than this start-up point, the *"On Time"* of the minimum ventilation cycle is fully compensated in order to extract a maximum level of heat from the attic (the fans are always on). As the room temperature rises and reaches the compensation's start-up point, the *"On Time"* starts decreasing gradually, in a linear fashion, as the room temperature increases. The *"On Time"* finally stops being compensated when

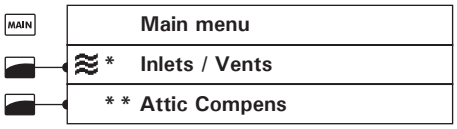

Attic Compensation on the Minimum Ventilation Timer*
On Time of the Min Vent. Timer
Compen-sated On Time (On Time = Cycle Time)
Regular On Time
Room T°
Room T° Compens. start T° <
Room T° Compens. start T° =
Room T° Compens. stop T° =

*This compensation only takes place when the attic temperature is warmer than the *"Attic start comp. at"* temperature value.

the room temperature is warm enough and reaches the *"Room Stop T°"* value. At the end of the compensation, the minimum ventilation *"On Time"* goes back to its regular value, and the sidewall vent starts be,ing used jointly with the attic vent.

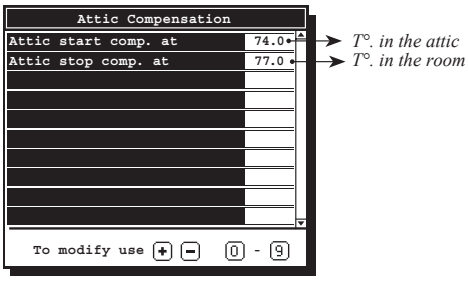
If the room temperature is higher than the cut-off point of the attic compensation and then starts decreasing, the *"On Time"* becomes fully compensated when the room temperature falls to the attic compensation's cut-off point *("Attic stop comp. at")*. The *"On Time"* then starts decreasing gradually, in a linear fashion, as the room temperature falls. The *"On Time"* finally stops being compensated when the room temperature reaches the *"Attic start comp at"* value.

1. Select:



**A password may be required to access this menu (see section 4.2.1).*

** * This menu is accessible if the attic compensation function is enabled in the Set-up menu (see section 4.4).*



2. Set the following parameters:

Attic start comp. at — Select the attic temperature over which the attic compensation can be used. This parameter also represents the room temperature over which the *"On Time"* portion of the minimum ventilation timer starts decreasing in a linear fashion as the temperature rises (see graph).

Attic stop comp. at — Select the room temperature at which the attic compensation ends. Note that this temperature must be higher than the compensation's start temperature and lower than the room temperature at which the 1st fan stage starts.

6.3. Lateral Ventilation

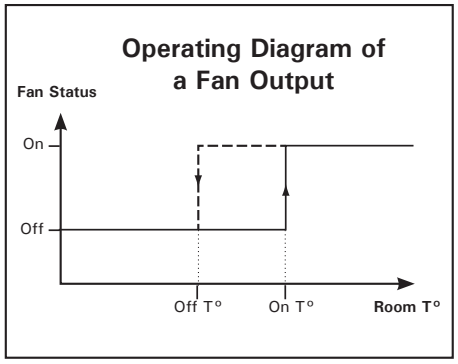
Lateral ventilation can only be used if at least 1 fan output is enabled in the Set-up menu (see section 4.4).

6.3.1. Lateral Ventilation Fans

Lateral ventilation begins at the startup of the first fan stage and ends at the startup of the ventilation mode that follows (i.e natural or tunnel ventilation).

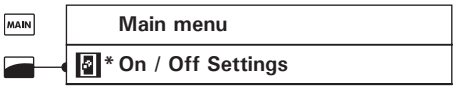
A fan output starts running when the room temperature reaches its *"On Temperature"*; likewise, it stops when the room temperature falls to its *"Off Temperature"*.

The temperatures at which a fan starts and stops are related to the temperature set point. This mean they are automatically adjusted when the temperature set point changes.



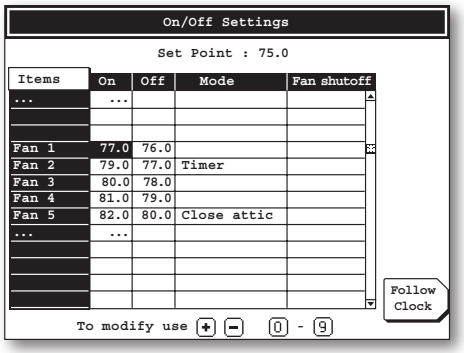
Fans Following Time Clocks: In the breeder mode, it is possible for a fan output to start running each time a particular time clock is on. Refer to the *"Follow clock"* parameter below to use this function.

1. Select:



** A password may be required to access this menu (see section 4.2.1).*

2. Use the arrow keys to scroll down and select the desired fan output. ** These outputs are available if they have previously been enabled in the Set-up menu (see section 4.4).*



3. Set the following parameters:

On & Off Columns:

Temperatures — Set the room temperature at which each fan starts and below which it stops. Note that the first fan to start signals the end of minimum ventilation and the beginning of lateral ventilation. ** Note that the "On Temperature" of a fan must be greater than its "Off Temperature".*

Mode Column:

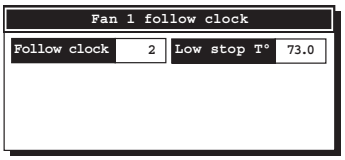
This column tells the controller to execute a particular function at the startup of a fan output or allows giving the output a special attribute. Set the mode of each fan output as follows (set the mode to "—" if nothing applies to an output).

Timer — The *"Timer"* label identifies a fan output that is used in minimum ventilation. A fan output that is labeled *"Timer"* runs according to a timer in minimum ventilation and runs continuously when the room temperature reaches its *"On Temperature"*.

Close Attic — The controller can close the attic vent at the startup of a certain fan output. Assign the *"Close attic"* label to the fan output at which the attic must close (if applicable). ** This option is available if the attic vent is enabled in the Set-up menu (see section 4.4).*

Timer, Close Attic — Use this label to identify a fan that is used in minimum ventilation and whose startup asks for the attic vent to close. ** This option is available if the attic vent is enabled in the Set-up menu (see section 4.4).*

4. If you want the selected fan to run when a particular time clock output is on, select the *"Follow Clock"* tab with the menu selectors and then set parameters below. **This tab is only accessible if the controller is used in a breeder facility.*



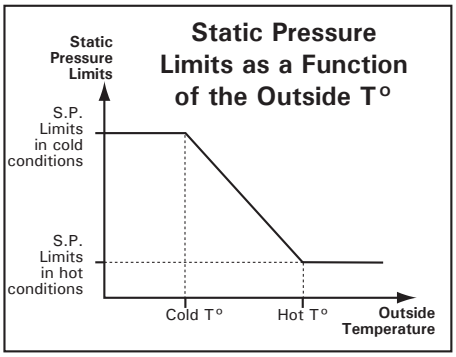
Follow clock — Select during the operation of which time clock output you want the selected fan to run.

Low stop T° — If the room temperature gets too low, the fan stops following the time clock output. Set this security limit to the desired value.

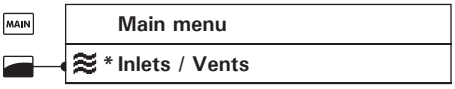
6.3.2. Air Intake in Lateral Vent.

Two vent outputs can be used in lateral ventilation: a sidewall vent and an attic vent. Both of these vents move according to the variations in the static pressure level: they opens when the pressure level exceeds the sidewall vent's Hi pressure limit and close when the pressure level gets lower than the sidewall vent's Lo pressure limit.

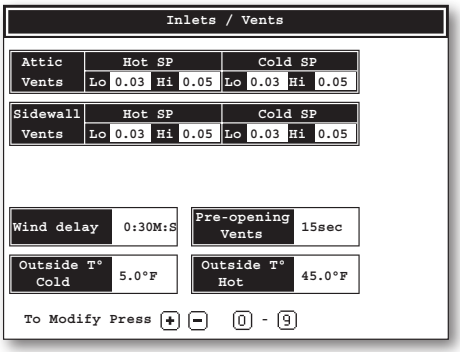
Automatic adjustment of the pressure limits as a function of the outside temperature: If an outside temperature sensor is used, the controller can automatically adjust the static pressure limits used by sidewall vents according to the outside temperature. Using higher pressure limits in cold weather allows reducing the cold air intake since the pressure level has to be higher before the vents start opening. Likewise, using lower pressure limits in warm weather allows the vents to move with fewer restrictions.


Static Pressure Limits as a Function of the Outside T°
Static Pressure Limits
S.P. Limits in cold conditions
S.P. Limits in hot conditions
Cold T°
Hot T°
Outside Temperature

1. Select:



** This menu is accessible if at least 1 inlet is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*



2. Set the following parameters:

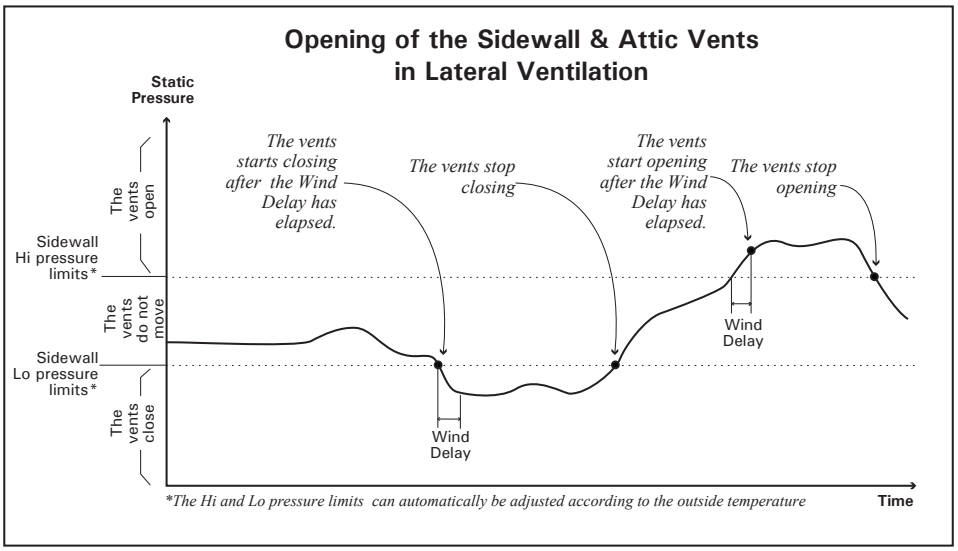
Sidewall Vents Lo/Hi Pressure Limits — Set the static pressure level below/above which the vents must close/open. If an outside temperature sensor is used, set these limits separately for hot and cold weather conditions.* *This parameter is accessible if the sidewall vent is enabled in the Set-up menu (see section 4.4).*

Attic Vents Lo/Hi Pressure Limits — Set the static pressure level below/above which the attic vent must close/open when the attic compensation is on. If an outside temperature sensor is used, set these limits separately for hot and cold weather conditions.* *This parameter is accessible if the attic compensation function is enabled in the Set-up menu (see section 4.4).*

Wind Delay — When the pressure level gets out of range, the air inlets wait for the end of the *"Wind Delay"* before moving; they only move if the high or low pressure condition is valid all along this delay. This way, the inlets do not move if a wind draft causes fleeting changes in the pressure level. Set the *"Wind Delay"* to the desired value. **Note that this parameter is common to all air inlets (sidewall vent, attic vent and tunnel inlets).*

Pre-opening Vents — Specify how much time is required to pre-open the sidewall & attic vents before activating the fans in minimum ventilation. Refer to section 6.2.4 for further information on this delay. **This parameter is accessible if the pre-opening is not set automatically by the controller. Refer to the Set-up menu in section 4.4 to enable/disable the automatic pre-opening function.*

Outside T° Hot & Cold — Specify the outdoor temperature at which hot & cold static pressure limits are used. **These parameters are accessible if an outside temperature sensor is enabled in the Set-up menu (see section 4.4).*


Opening of the Sidewall & Attic Vents in Lateral Ventilation
Static Pressure
The vents open
Sidewall Hi pressure limits*
The vents do not move
Sidewall Lo pressure limits*
The vents close
The vents starts closing after the Wind Delay has elapsed.
The vents stop closing
The vents start opening after the Wind Delay has elapsed.
The vents stop opening
Wind Delay
Wind Delay
*The Hi and Lo pressure limits can automatically be adjusted according to the outside temperature
Time

6.4. Natural Ventilation

The controller can control the opening of 2 natural ventilation curtains. In the natural ventilation mode, all the fans are off and the air intake is provided by the natural curtains and by the tunnel inlet (if applicable). This ventilation mode is only accessible in turkey facilities. Refer to section 4.4 to select the type of facility in use.

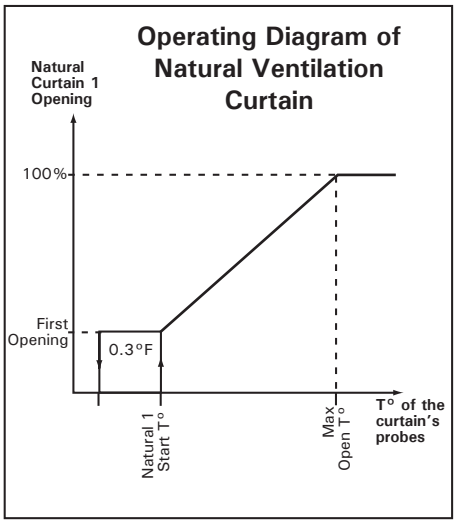
The natural ventilation is only accessible in a turkey facility (see section 4.4).

Note that the static pressure alarm conditions are not monitored while the controller is in natural ventilation.

Beginning of Natural Ventilation: The controller enters in natural ventilation when temperature reaches the start temperature of a natural ventilation curtain. At that moment, the controller makes the natural curtain open to its initial position and closes the lateral & attic vents.

Stopping the Fans in Natural Ventilation: The controller switches off all the fan outputs (lateral & tunnel fans) when the temperature reaches the fans shutoff point *("Shutoff fans at")*.

Movement of the curtains in natural ventilation: A natural ventilation curtain opens to its initial position when temperature reaches its respective start temperature. The curtain then opens gradually towards its maximum opening as temperature increases; it finally reaches its maximum opening when temperature reaches the *"Max Open T°"* temperature value.



When a curtain reaches a particular position and stops, a temperature variation of at least 0.5°F must occur for the curtain's position to be readjusted. An *"Off Time"* is also defined to leave a sufficient amount of time between 2 movements of the curtain.

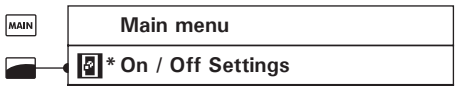
Note that if the tunnel inlet is enabled, this inlet will follow the same movements as natural curtain 1.

End of Natural Ventilation: The natural ventilation mode ends when the controller enters in tunnel ventilation or when it goes back in lateral ventilation (if applicable). Note these 2 ventilation modes are optional in a turkey facility that is why it is also possible to use the natural ventilation mode permanently.

Transition from Natural to Tunnel: At the start-up of tunnel ventilation, the natural ventilation curtains close completely and the tunnel inlet opens in the meanwhile. When the natural ventilation curtains are totally closed, the tunnel inlet reaches its required position and the controller activates the proper fans and tunnel fans.

Transition from Tunnel to Natural: Tunnel ventilation ends when the temperature gets lower than the start temperature of the first tunnel fan stage. At that moment the natural ventilation curtain opens completely and the tunnel inlet opens in the meanwhile. When half the opening time of the natural curtain has elapsed, the controller switches off all the tunnel fans and the tunnel inlet starts moving along with natural curtain 1.

1. Select:

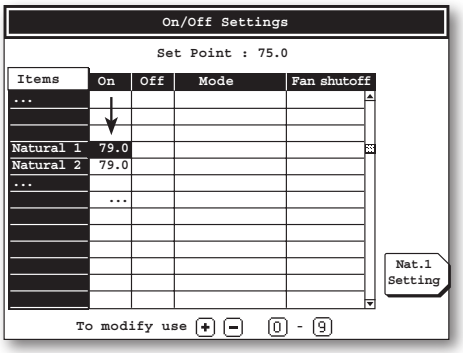


** A password may be required to access this menu (see section 4.2.1).*

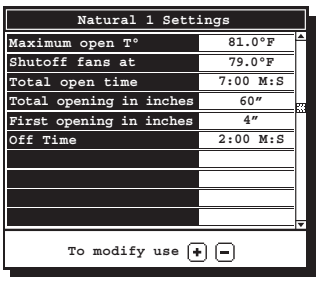
2. Use the arrow keys to scroll down and select the desired natural curtain output. * *These outputs are available if they have previously been enabled in the Set-up menu (see section 4.4).*

3. Set the following parameters:

On temperature — Set the temperature at which the selected natural ventilation curtain starts opening. **If 2 curtains are used, the first curtain to start moving signals the beginning of natural ventilation.*



4. Select the *"Nat.x Setting"* tab with the menu selectors to display the curtain settings and set the following parameters:



Maximum open T° — Select the temperature at which the selected curtain reaches its maximum opening.

Shutoff fans at — Select the temperature at which the fans must stop running in natural ventilation. **This parameters is common to both natural ventilation curtains and is only available if fan outputs are enabled in the Set-up menu (see section 4.4).*

Total open time — Select the total opening time of the curtain (in minutes and seconds).

Total opening in inches — Select the total distance that separates the minimum and the maximum positions of the curtain (in inches).

First opening in inches — Select the initial opening of the curtain (in inches). The curtain reaches this opening when temperature reaches its "On Temperature".

Off Time — Select the amount of time that must be left between 2 consecutive movements of the curtain.

6.5. Tunnel Ventilation

6.5.1. Principle of Operation

The tunnel ventilation mode begins at the startup of a chosen tunnel fan output. If the lateral ventilation mode preceeds the tunnel ventilation mode, the controller can make a smooth transition between both modes by opening the tunnel inlet prior to closing the sidewall vents. Refer to the following section of this manual to specify the moment at which the transition begins and the moment at which tunnel ventilation is fully enabled.

Temperature Sensors in Tunnel Ventilation: When it is in tunnel ventilation, the controller measures the room temperature according to the temperature sensors that are associated with the tunnel fan output in use. The sensors that are being used in tunnel ventilation are specially defined to compensate for changes in airflow patterns that can distort the room temperature. Refer to section 4.5 to select the temperature sensors used in tunnel ventilation.

Air Intake in Tunnel Ventilation: In tunnel ventilation, the air intake is exclusively provided by the tunnel inlets (the sidewall vent, attic vents and natural curtains are closed). Up to 2 tunnel inlets can operate as a function of the static pressure level or as a function of the room temperature. Refer to section 4.4 of this manual to enable the tunnel inlets and to choose their operating mode.

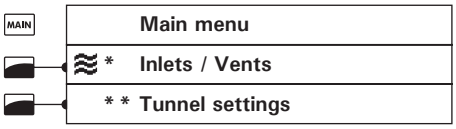
Low Static Pressure Alarm Limit: If the low pressure alarm condition is used, the pressure limit at which the alarm occurs changes when the controller enters in tunnel ventilation. Refer to section 13.2.2 to set the low pressure limit used in tunnel ventilation.

Refer to the previous section to see how the transition is made between natural to tunnel ventilation.

6.5.2. Tunnel Ventilation in Standby

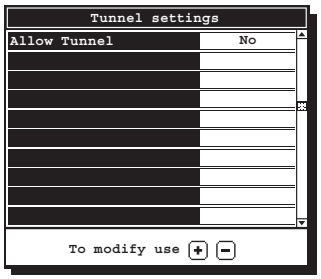
The controller allows putting tunnel ventilation on standby at any moment. This is useful to prevent the tunnel inlet from opening when the animals are too young or when it is too cold outside for instance. If the tunnel mode is on standby and the room temperature is suitable for tunnel ventilation, the controller will not switch to tunnel ventilation and will keep using the highest level of ventilation.

1. Select:



** This menu is accessible if at least 1 inlet is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*

** * This menu is accessible if the tunnel inlet is enabled in the Set-up menu (see section 4.4).*



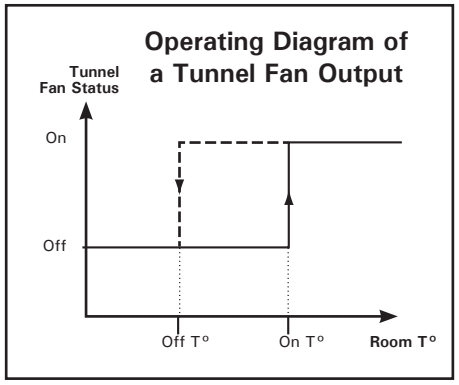
2. Set the following parameters:

Allow Tunnel — Select *"Yes"* to allow tunnel ventilation or select *"No"* to put this ventilation mode on standby.

6.5.3. Tunnel Fans

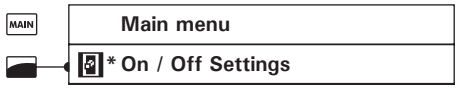
A tunnel fan output starts running when the room temperature reaches the output's *"On Temperature"*; likewise, it stops when the room temperature falls to its *"Off Temperature"*.

The temperatures at which a tunnel fan starts and stops are related to the temperature set point. This mean they are automatically adjusted when the temperature set point changes.



Tunnel Fans Following Time Clocks: In the breeder mode, it is possible for a tunnel fan output to start running each time a particular time clock is on. Refer to the "Follow clock" parameter below to use this function.

1. Select:



** A password may be required to access this menu (see section 4.2.1).*

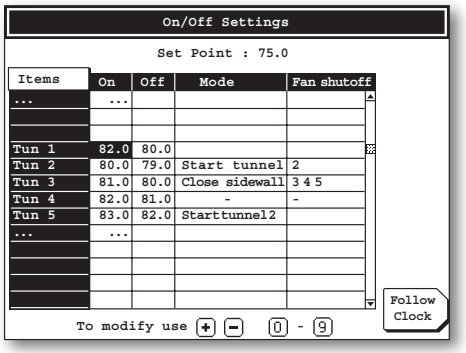
2. Use the arrow keys to scroll down and select the desired tunnel fan output. * *These outputs are available if they have previously been enabled in the Set-up menu (see section 4.4).*

3. Set the following parameters:

On & Off Columns:

Temperatures — Set the room temperature at which each tunnel fan starts and below which it stops. **The On Temperature of a tunnel fan must be greater than its Off Temperature.*

Mode Column: This column tells the controller to execute a particular function at the startup of a tunnel fan output or allows giving the out-



put a special attribute. Set the mode of each tunnel fan output as follows (set the mode to "—" if nothing applies to an output).

Timer — The *"Timer"* label identifies a tunnel fan output that is used in minimum ventilation. A tunnel fan that has this label runs according to a timer in minimum ventilation and runs continuously when the room temperature reaches its *"On Temperature"*.

Start tunnel — The *"Start tunnel"* label indicates the moment at which the transition from lateral to tunnel ventilation begins: the first tunnel inlet starts being used at the start-up of that tunnel fan and the sidewall vent keeps being used.

Close sidewall — The *"Close sidewall"* label indicates the moment at which lateral ventilation ends. The sidewall vent closes at the startup of the chosen tunnel fan and the tunnel ventilation mode becomes fully effective at that moment.

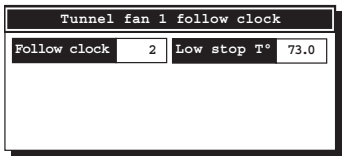
St.tun,clo.side — The *"Start tunnel, close sidewall"* label indicates the moment at which the controller switches from lateral to tunnel ventilation. With this option, there is no gradual transition made from one ventilation mode to the other. The sidewall vents close and the tunnel inlet start being used at the startup of the chosen tunnel fan.

Start tunnel 2 — The second tunnel inlet starts being used at the startup of the selected tunnel fan output.

Fan Shutoff Column:

Fan Shutoff — The controller can disable some lateral fans at the startup of chosen tunnel fan outputs. Select the moment at which each lateral fan must stop (if applicable). Note that when a fan is stopped, it will not restart until the controller re-enters in lateral ventilation.

4. If you want the selected fan to run when a particular time clock output is on, select the *"Follow Clock"* tab with the menu selectors and then set parameters below. **This tab is only accessible if the controller is used in a breeder facility.*



Follow clock — Select during the operation of which time clock output you want the selected tunnel fan to run.

Low stop T° — The selected tunnel fan will stop following the time clock output if the room temperature gets too low. Set this security limit to the desired value.

6.5.4. Tunnel Inlets

The controller can control the opening of 2 tunnel inlets. These inlets either operate as a function of the static pressure level or as a function of temperature. Refer to the Set-up menu in section 4.4 to enable the tunnel inlets and to choose their operating mode.

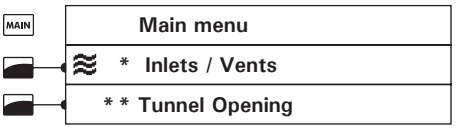
If 2 tunnel inlets are used, they both follows the same movements. However, both tunnel inlets do not start being used at the same time. The 1st inlet starts being used at the beginning of tunnel ventilation and the 2nd inlet starts at the startup of another user-defined tunnel fan output. Refer to the previous section of this manual to set the moment at which the 2nd tunnel inlet starts being used.

6.5.4.1. Temperature-based Tunnel Inlet

When using temperature-based tunnel inlets, the user must associate an actuator position with the startup of each tunnel fan. This way, when a fan/tunnel fan starts, the inlet opens accordingly. The tunnel inlet starts opening this way at the beginning of tunnel ventilation. The graph below shows how the tunnel inlet opens. Refer to Set-up menu in section 4.4 to enable a temperature-based tunnel inlet.

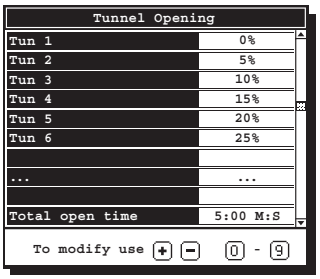
Pre-opening of the Tunnel Inlet: At the beginning of tunnel ventilation, the controller waits for the tunnel inlet to reach half of its programmed position before activating the fans (or waits 30 seconds, whichever is shorter).

1. Select:



** This menu is accessible if at least 1 inlet is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*

** * This menu is accessible if the tunnel inlet's operating mode is set to "T°" in the Set-up menu (see section 4.4).*



2. Set the following parameters:

Tun #x Opening — Associate a tunnel inlet opening (in %) with the startup of each tunnel fan.

If a tunnel fan is used in lateral ventilation, set its tunnel inlet opening to 0% if you don't want the tunnel inlet to open in lateral ventilation!

Total opening time — Specify the exact time that is required to reach the actuator's maximum limit switch. The controller will limit the opening of the inlet according to this value.
** This parameter is common to all programs.*

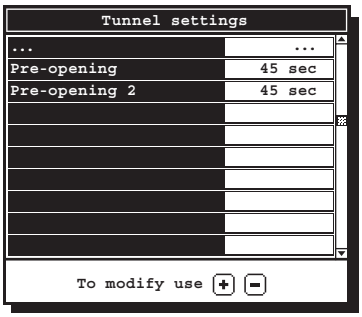
6.5.4.2. Pressure-based Tunnel Inlets

Opening of the Tunnel Inlet:
If the tunnel inlets are controlled by static pressure, the first inlet start moving according to the fluctuations in the pressure level when the controller enters in tunnel ventilation. It open when the pressure level exceeds the high pressure limit and closes when the pressure level gets lower than the low pres-

Lo/Hi Stat. Pressure — Set the static pressure level below/above which the tunnel inlet must close/open. * *This parameter is accessible if the tunnel inlet operates according to static pressure level (see section 4.4).*

Wind Delay — When the pressure level exceeds the high or low static pressure set limit, the tunnel inlet waits for the end of the *"Wind Delay"* before moving. The high or low pressure condition must be maintained during the whole delay for the tunnel inlet to start moving. This way, the tunnel inlet does not move if a wind draft causes fleeting changes in the pressure level. Set the *"Wind Delay"* to the desired value. **Note that this parameter is common to all pressure-based air inlets (sidewall, attic and tunnel inlet).*

1. Select the *"Tunnel settings"* tab with the menu selectors.



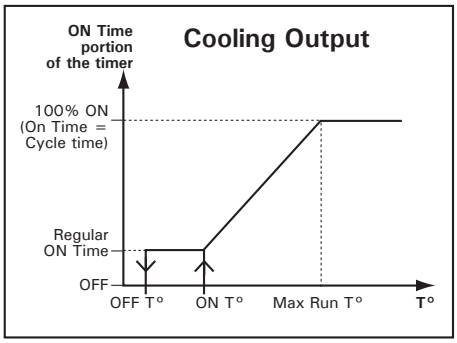
2. Set the following parameters:

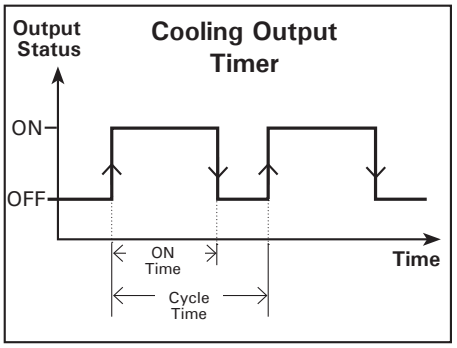
Pre-opening — Specify how much time is required to pre-open the tunnel inlet at the startup of tunnel ventilation (if no transition is made) or at the startup of the transition from lateral to tunnel ventilation. The controller will pre-open the tunnel inlet before activating the fans at the startup of the tunnel fan that is labeled *"Start Tunnel"* or *"St.Tun,Clo side"* (refer to section 6.5.3). * *This parameter is accessible if the tunnel inlet operates according to static pressure level (see section 4.4).*

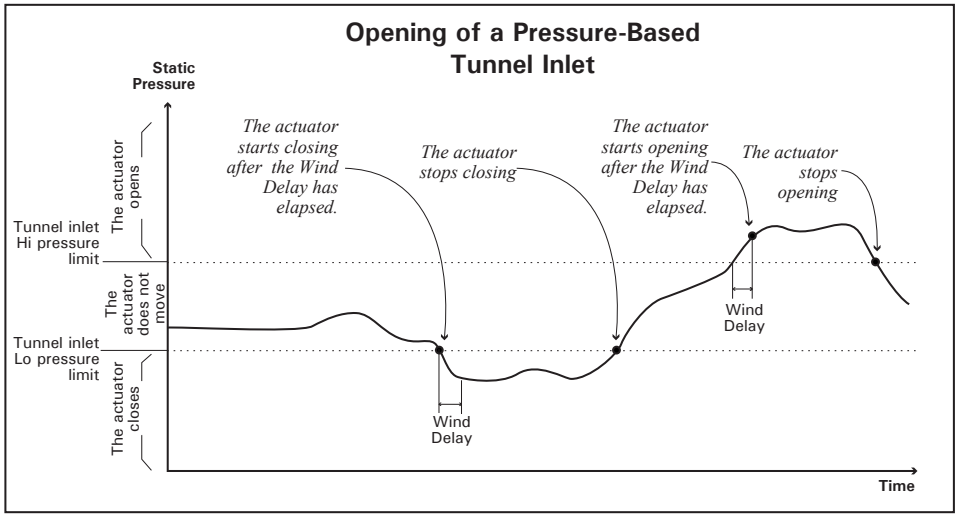
Pre-opening 2 — Specify how much time is required to pre-open the tunnel inlet at the startup of tunnel ventilation (when the transition from sidewall to tunnel ventilation is over). The controller will pre-open the tunnel inlet before activating the fans at the startup of the tunnel fan that is labeled *"Close sidewall"* (refer to section 6.5.3). If no transition is made, this delay is simply added to the initial pre-opening delay. * * *This parameter is accessible if the tunnel inlet operates according to static pressure level (see section 4.4).*

6.6. Cooling Outputs

The controller has 6 cooling outputs that can be used to activate various types of cooling devices. A cooling output starts operating in timer mode when the average temperature reaches its *"ON Temperature"*. The *"ON Time"* portion of the timer then increases as the temperature rises, up until it reaches the *"Cycle Time"* (i.e., the cooling output is always on). This happens when the average temperature reaches the *"Max Run T°"* parameter value. The graph below sums up this situation.





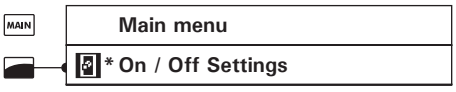

Opening of a Pressure-Based Tunnel Inlet
Static Pressure
The actuator opens
Tunnel inlet Hi pressure limit
The actuator does not move
Tunnel inlet Lo pressure limit
The actuator closes
The actuator starts closing after the Wind Delay has elapsed.
The actuator stops closing
The actuator starts opening after the Wind Delay has elapsed.
The actuator stops opening
Wind Delay
Wind Delay
Time

Operating Time Range: The user can specify a range of time over which the cooling outputs can run. This allows deactivating them at night for instance.

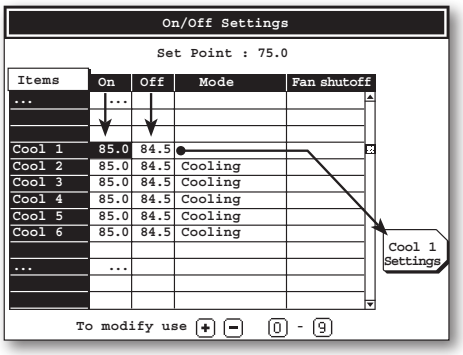
Reference Temperature: Each cooling output operates according to the average temperature reading of its respective group of sensors. Refer to section 4.5 to assign these sensors. The operating temperatures of the cooling outputs are also related to the temperature set point. This means that if the temperature set point changes the ON & OFF temperatures of these outputs are adjusted consequently.

Cooling Output in the Egg Room: The controller can control a supplementary cooling output in the egg room. This output operates differently from the cooling outputs that are used in the rest of the house. Refer to chapter 11 of this manual to get information about the egg room cooling output.

1. Select:



** A password may be required to access this menu (see section 4.2.1).*

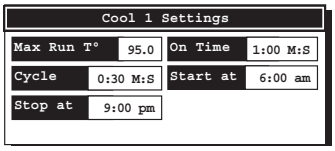


2. Use the arrow keys to scroll down and select the desired cooling output. ** These outputs are available if they have previously been enabled in the Set-up menu (see section 4.4).*

3. Set the temperature at which each cooling output starts running in timer mode (*"On Temperature"*) and the temperature below which the output stops (*"Off Temperature"*). Note that the temperature at which the output starts must be greater than the temperature at which it stops.

4. Select the *"Settings"* tab that is associated with the chosen cooling output with the menu selectors.

5. Set the following parameters separately for each cooling output in use:



Max Run T° — Set the temperature at which the cooling output runs continuously (i.e., the *"On Time"* portion of the timer is equal to the *"Cycle Time"*). Note that this parameter value must be greater than the temperature at which the output starts.

On Time — Set the *"On Time"* of the regular cooling timer.

Cycle — Set the *"Cycle Time"* of the cooling timer. Note that the *"Cycle Time"* must be longer than the *"On Time"*.

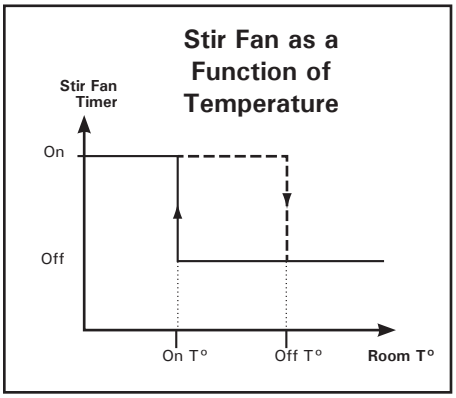
Start At / Stop At — Specify the period of time over which the cooling outputs can run.

6.7. Stir Fans

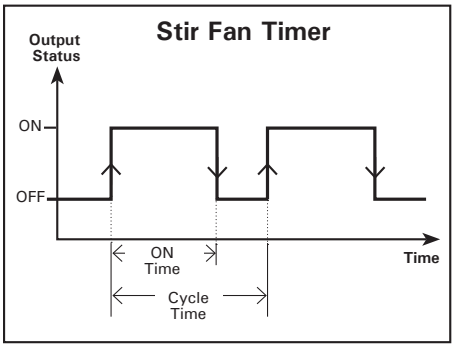
The controller has 1 stir fan output that can either be used in minimum ventilation or when the room temperature gets lower than a user-defined limit. Refer to the Set-up menu to enable the desired operating mode of this output (section 4.4).

Stir Fans in Minimum Ventilation: When they are used in minimum ventilation the stir fans only run during the *"Off Time"* portion of the minimum ventilation cycles. This ensures good air circulation when the exhaust fans are not running.

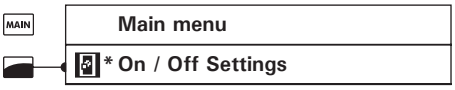
Stir Fans as a Function of Temperature: When they operate as a function of temperature, the stir fans run in timer mode when the average temperature is lower than the output's *"On Temperature"* and stop when the room temperature rises and reaches the output's *"Off Temperature"*.



Reference Temperature: Operating temperatures of the stir fan output are related to the temperature set point. This means that if the set point changes, the ON and OFF Temperatures are adjusted consequently.



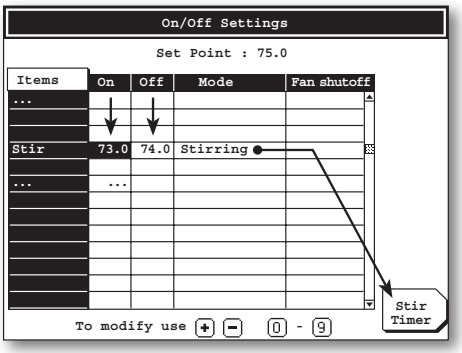
1. Select:



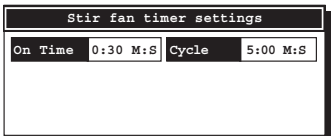
** A password may be required to access this menu (see section 4.2.1).*

2. Use the arrow keys to scroll down and select the stir fan output. * *This output is available if it has previously been enabled in the Set-up menu (see section 4.4).*

3. Set the temperature at which the stir fan output starts (*"On Temperature"*) and the temperature above which the output stops (*"Off Temperature"*). Note that the temperature at which the output starts must be lower than the temperature at which it stops.



4. Select the timer tab that is associated with the stir fan output with the menu selectors.

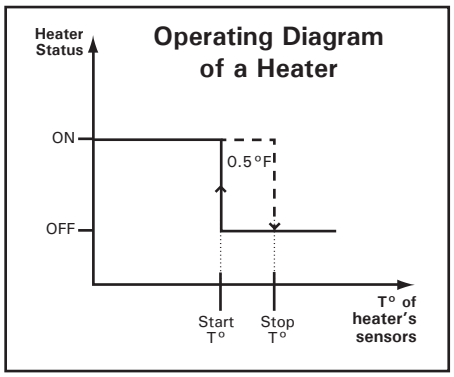


5. Set the *"On Time"* and the *"Cycle Time"* of the stir fan's timer.

7. HEATING

Heaters in a breeder or broiler facility: If the controller is used in a breeder or in a broiler facility, up to 16 heaters can be used. In addition, the PRO-VISION can simulate additional heating outputs with the **Hi Fire option**. When this option on, the controller doubles the number of heaters in use and each simulated heater (Hi Fire Step) operates as a regular heater, with its own start/stop temperatures, relay selection and selection of sensors. Refer to section 4.4 to activate the Hi fire option.

Heaters in a turkey facility: If the controller is used in a turkey facility, up to 32 independent heaters can be enabled and each one of them operates with its own start/stop temperatures, relay selection and selection of sensors.

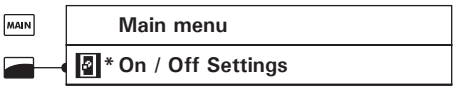


Reference Temperature: Operating temperatures of the heaters are defined with respect to the temperature set point and with respect to heater 1: if the set point changes, the on/off temperatures of all heaters will be adjusted by the same amount and if the On or Off temperature of heater 1 changes, the operating temperatures of all heaters will be replaced by the operating temperatures of heater 1.

Heaters in Non-brood Zones: The label *"Non-brood"* is given to a heater that is located in an empty zone. The On & Off temperatures of a non-brood heater are related to the non-brood temperature set point. This means that they are automatically adjusted when this set point changes. Refer to section 4.8 for further information about non-brood zones.

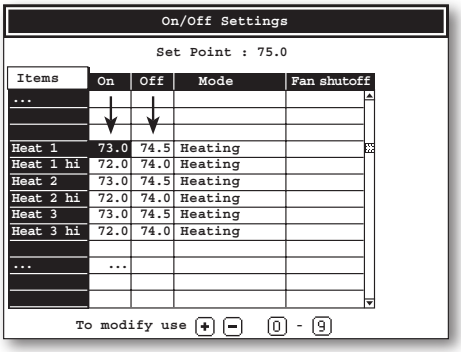
Heating Output in the Egg Room: The controller can control a supplementary heating output in the egg room. This output operates differently from the heating outputs that are used in the rest of the house. Refer to chapter 11 of this manual to get information about the egg room heating output.

1. Select:



** A password may be required to access this menu (see section 4.2.1).*

2. Use the arrow keys to scroll down and select the desired heating output. * *These outputs are available if they have previously been enabled in the Set-up menu (see section 4.4).*



3. Set the following parameters:

On temperature — Set the temperature below which the selected heater starts. If the Hi Fire option is used, set this temperature separately for both steps of the heating stage.

Off temperature — Set the temperature over which the heater stops. Note that the *"Off Temperature"* of an heating output must be greater than its *"On Temperature"*. If the Hi Fire option is used, set this temperature separately for both steps of the heating stage.

8. LIGHTS

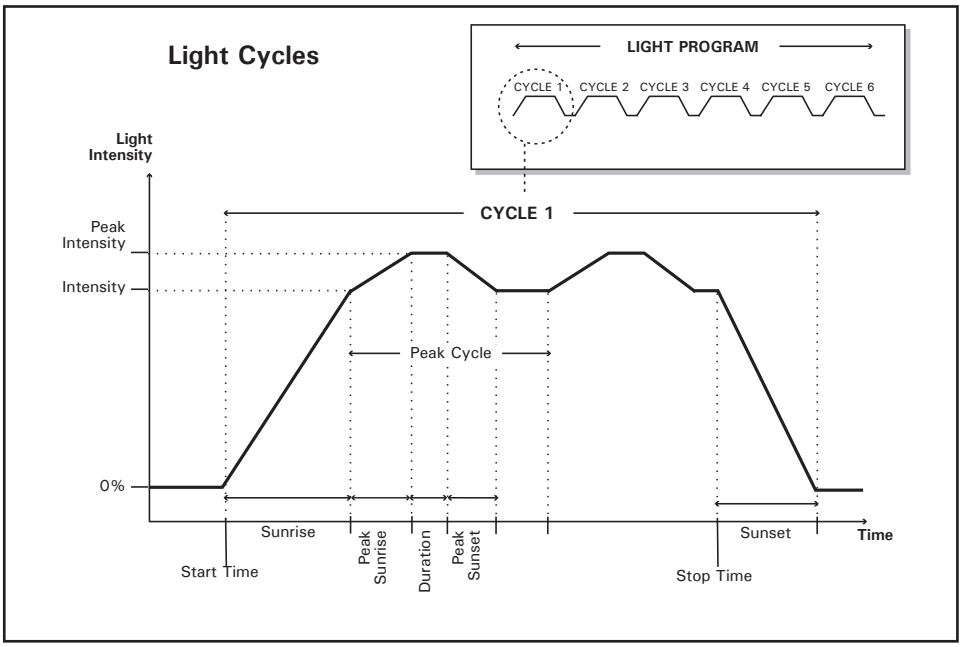
8.1. Principle of Operation

The controller has two 0-10V outputs that can be used to control the light intensity. Additional lights can also be connected to the On/Off relays: the on/off lights simply turn on when the 0-10V light output is on. Refer to section 4.4 to enable light programs and refer to section 4.7 to assign the on/off light relays.

Light Programs: The controller can use 9 different light programs containing 6 daily cycles each. The same program is performed every day until another program replaces it (the program selection is made according to the animal age).

Light Cycles: Up to 6 daily light cycles can be performed in the course of a light program. These cycles are used to change the light intensity over the day (see graph below).

Light Peaks: A light peak is a marked increase in the light intensity. They are used to stimulate the animals. When light peaks are used, they are performed right after the sunrise, at the very beginning of a light cycle and are then performed on a regular basis, according to a user-defined timer.



8.2. Settings

8.2.1. Light Program Settings

1. Select:

MAIN	**Main menu**
	*** Light Programs**
	Select a Light Program

**Accessible if the light output is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*

A graph showing the current status of the ongoing light cycle is displayed along with the light parameters.

2. Set the following parameters:

Make sure you have selected the right light program before adjusting the following parameters.

Age — Select the animal age at which the chosen program starts. This value ranges from -5 to 450 days (negative values are used to prepare the house before letting the animals in).

Lights 24hr — Select *"Yes"* for the lights to stay lit all day long; select *"No"* to use the light cycles.

Use Peaks — Select *"Yes"* to use light peaks at regular intervals or select *"No"* to disable them.

Sunrise — When a cycle starts, the light intensity increases from its minimum to its maximum intensity over this delay (see previous graph). Set the sunrise delay to the desired value (from 0 to 60 minutes). * *This parameter is accessible if the "Lights 24hr" option is disabled.*

Sunset — When the stop time of a light cycle is reached, the light intensity gradually decreases from its maximum to its minimum intensity over this delay (see previous graph). Set the sunset delay to the desired value (from 1 to 60 minutes). * *This parameter is accessible if the "Lights 24hr" option is disabled.*

Number of Cycles — Select how many cycles must be performed in a light program. It ranges from 1 to 6 cycles. * *This parameter is accessible if the "Lights 24hr" option is disabled.*

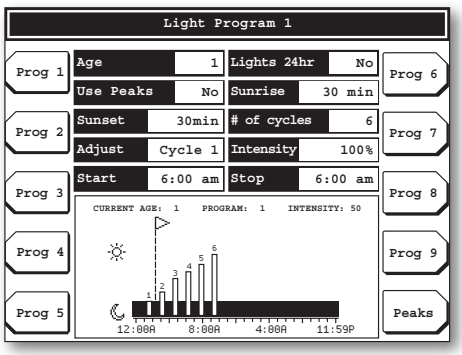
Adjust — Select the desired light cycle. The following parameters are related to this cycle: * *This parameter is accessible if the "Lights 24hr" option is disabled.*

Intensity —Select the light intensity that is reached in the chosen light cycle. * *This parameter is accessible if the "Lights 24hr" option is disabled.*

Hint: Use the "AM/PM" key to change the time indicator while adjusting the start & stop time (if applicable).

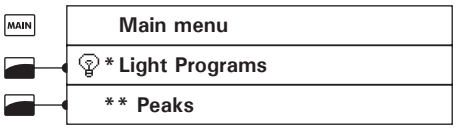
Start Time — Set the time at which the selected cycle starts. Make sure the light cycles do not overlap each other. * *This parameter is accessible if the "Lights 24hr" option is disabled.*

Stop Time— Set the time at which the light intensity starts decreasing at the end of the cycle (sunset). * *This parameter is accessible if the "Lights 24hr" option is disabled.*



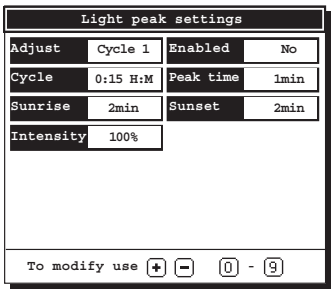
8.2.2. Light Peak Settings

1. Select:



**This menu is accessible if the light output is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see sect. 4.2.1).*

** * This tab is accessible if the "Use Peak" option is enabled in section 8.2.1.*



2. Set the following parameters:

Adjust — Select the desired light cycle. All parameters below are related to the chosen cycle.

Enabled — Select *"Yes"* to use light peaks during the selected light cycle.

Cycle — Select how much time is required to perform a light peak cycle (see previous graph). Note that the *"Cycle Time"* must be even or longer than the *"Peak time + Peak Sunrise + Peak Sunset"*.

Peak Time — Select during how much time the light peak intensity must be maintained (from 0 to 59 minutes).

Sunrise / Sunset — Select the duration of the peak sunrise and sunset (see previous graph). These parameters range from 1 to 60 minutes.

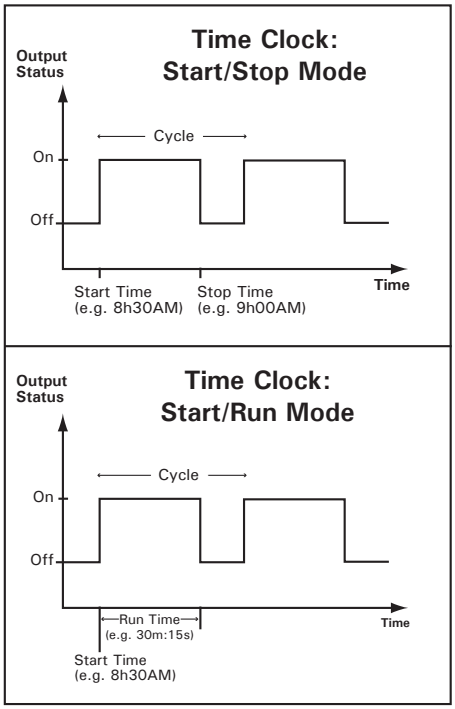
Intensity — Set the intensity of light peaks to the desired value. It ranges from the regular light intensity (as defined in previous section) to 100%.

9. TIME CLOCKS

9.1. Clocks in a Broiler or Turkey Facility

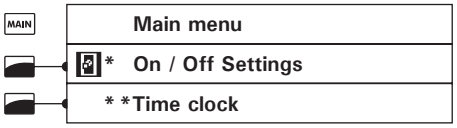
When it is used in a broiler or in a turkey facility, the controller can control 8 time clocks with 12 timer cycles each. These outputs are used to activate different kind of devices using the real-time clock.

A time clock starts when the *"On Time"* of a time clock cycle is reached; the output either stops after a certain run time or at a certain time of day. The following diagrams show both possibilities:



Note that the *"Start/Run"* mode allows stopping the outputs with a little more precision since it allows stopping them by the seconds (contrarily to the *"Start/Stop"* mode which allows stopping them by the minutes). Refer to the Set-up menu in section 4.4 to choose the desired operating mode of the time clocks (*"Start/Stop"* or *"Start/Run"*).

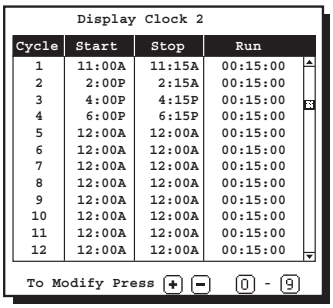
1. Select:



**A password may be required to access this menu (see section 4.2.1).*

** * This menu is accessible if at least 1 time clock is enabled in the Set-up menu (see section 4.4).*

Note that the time clock menu will appear as shown below only if the *"Broiler"* or *"Turkey"* facility is enabled in the Set-up menu (see section 4.4).



2. Select the desired time clock output.

3. Set the following parameters:

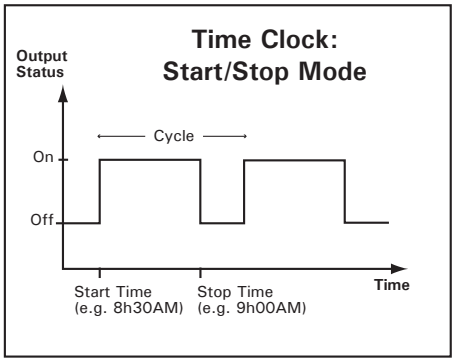
Start Time — Set the time at which each cycle starts. If 12 cycles are not required, set the *"Start & Stop Times"* of the unused cycles to the same value or set the *"Run Time"* to 0:00:00. NB. Use the *"AM/PM"* key to change the time indicator (if required).

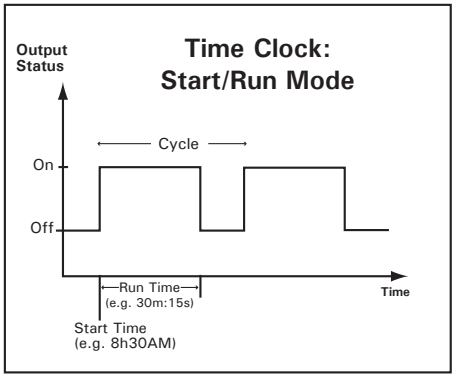
Stop or Run Time — The cycles can either stop at a specific time of day or after a certain run time. Set the time at which each cycle ends. NB. Use the *"AM/PM"* key to change the time indicator (if required). **Refer to section 4.4 to choose how the time clocks must stop.*

9.2. Clocks in a Breeder Facility

When it is used in a breeder facility, the controller can control 8 time clocks that are each using 4 timer cycles. These outputs are used to activate different kind of devices using the real-time clock. In the breeder facility, the cycles can be enabled on specific days of the week.

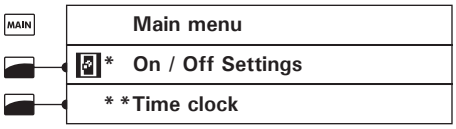
A time clock starts when the *"On Time"* of a time clock cycle is reached; the output either stops after a certain run time or at a certain time of day. The following diagrams show both possibilities:





Note that the *"Start/Run"* mode allows stopping the outputs with a little more precision since it allows stopping them by the seconds (contrarily to the *"Start/Stop"* mode which allows stopping them by the minutes). Refer to the Set-up menu in section 4.4 to choose the desired operating mode of the time clocks (*"Start/Stop"* or *"Start/Run"*).

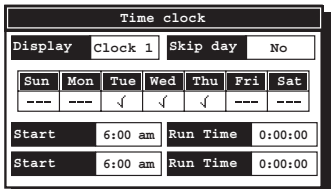
1. Select:



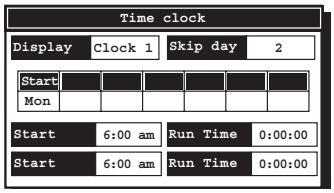
**A password may be required to access this menu (see section 4.2.1).*

** * This menu is accessible if at least 1 time clock is enabled in the Set-up menu (see section 4.4).*

Note that the time clock menu will appear as shown below only if the "Breeder" facility is enabled in the Set-up menu (see section 4.4).



or



2. Set the following parameters:

Display — Select the desired time clock. All parameters displayed below are related to the chosen output.

Skip day — Time clock outputs can either run accroding to a weekly schedule (7 days) or they can be stopped at regular intervals without considering the day of the week. Select *"No"* to use the weekly schedule or select the number of days to be skipped after each operating day (1-5 days).

Day of the week — Select on what day of the week the selected time clock is used. **This parameter is accessible if the "Skip Day" option is set to "No".*

Start Day — Select on what day of the week the time clock schedule starts. **This parameter is displayed if the "Skip Day" option is enabled above.*

Start Time — Set the time at which each cycle starts. If 3 cycles are not required, set the *"Start & Stop Times"* of the unused cycles to the same value or set the *"Run Time"* to 0:00:00. NB. Use the *"AM/PM "* key to change the time indicator (if required).

Stop or Run Time — The cycles can either stop at a specific time of day or after a certain run time. Set the time at which each cycle ends. NB. Use the *"AM/PM "* key to change the time indicator (if required). **Refer to section 4.4 to choose how the time clocks must stop.*

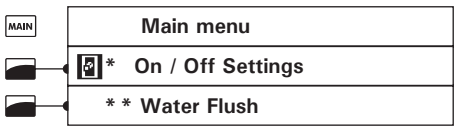
10. WATER LINE FLUSH

The controller can flush 8 water line outputs in turn and can repeat the flushing process up to 4 times a day. Note that 2 water lines can be connected to each water line output.

Water Flush Cycle: When a water flush cycle starts, the controller flushes all water line outputs in turn : after having flushed a water line output, it waits for a certain delay before flushing the lines of the next output. In all, up to 4 cycles can be performed each day.

Water Flush Program: A water flush program is the combination of all water flush cycles that are performed in a day. The water flush parameters must be associated with a particular program which starts at a specific age. Using multiple programs is useful to adapt the frequency and the duration of the flushing cycles as the birds are growing. Up to 5 different water flush programs can be defined.

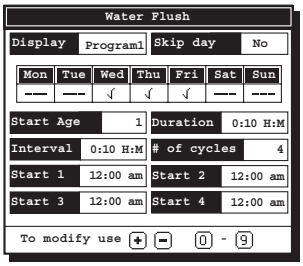
1. Select:



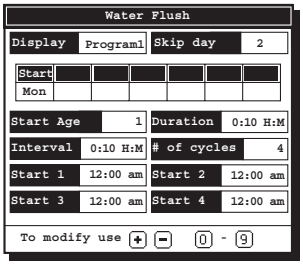
**A password may be required to access this menu (see section 4.2.1).*

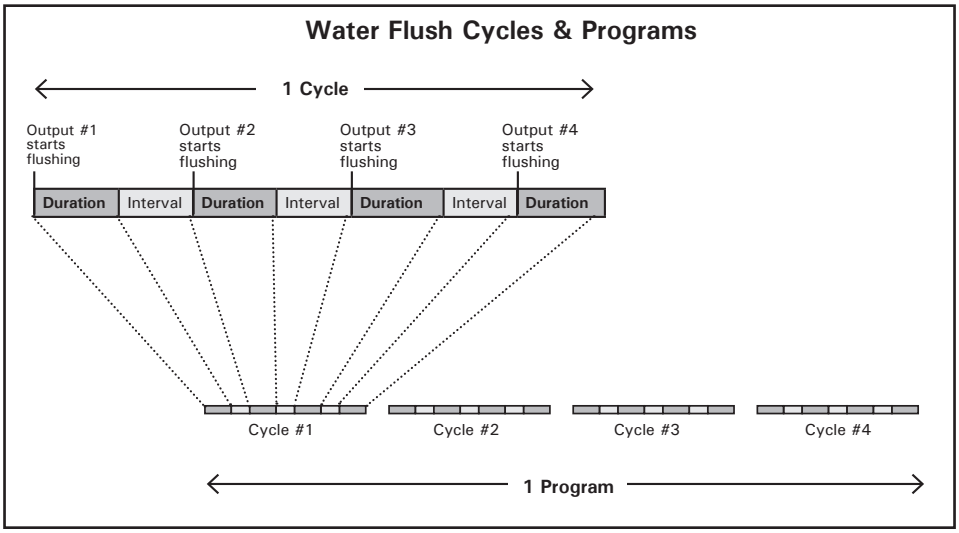
** * This menu is accessible if at least 1 water flush line output is enabled in the Set-up menu (see section 4.4).*

2. Set the following parameters:


Water Flush
Display Program1
Skip day No
Mon Tue Wed Thu Fri Sat Sun
--- --- √ √ √ --- ---
Start Age 1
Duration 0:10 H:M
Interval 0:10 H:M
# of cycles 4
Start 1 12:00 am
Start 2 12:00 am
Start 3 12:00 am
Start 4 12:00 am
To modify use + - 0 - 9

or





Display — Select the desired water flush program (program 1-5). All parameters below are related to the chosen water flush program.

Skip day — Water flush can either be performed accroding to a weekly schedule (7 days) or they can be stopped at regular intervals without considering the day of the week. Select *"No"* to use the weekly schedule or select the number of days to be skipped after each operating day (1-5 days).

Start Day — Select on what day of the week the water flush schedule starts. **This parameter is displayed if the "Skip Day" option is enabled above.*

Start Age — Select the age at which the selected water flush program starts.

Day of the Week — Select on which days of the week the water flush program must be performed. **This parameter is accessible if the "Skip Day" option is set to "No".*

Duration — Specify the amount of time required to flush one (1) water line output. The duration of water flushes is the same for all water line outputs.

Interval — After having flushed a water line output, the controller waits for this time delay before flushing the water lines of the next output. Note that this delay is common to all water line outputs.

Number of cycles — Select the number of daily flush cycles that must be performed in the course of the selected program (1 to 4 cycles per day).

Start 1-4 — Select the start time of each water flush cycle. NB. Use the *"AM/PM "* key to change the time indicator (if required).

11. EGG ROOM OUTPUTS

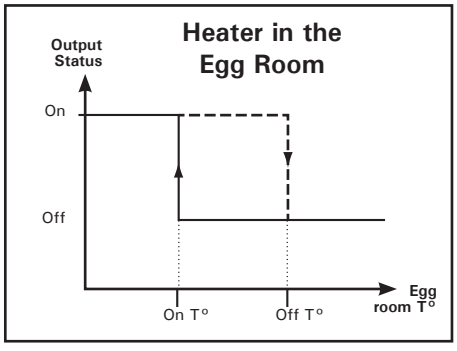
If it is used in a breeder facility the controller automatically enables an egg room and controls the ambient temperature and humidity level of in it with its 3 egg room outputs (egg room cooling, heating and humidity outputs). Refer to the Set-up menu in section 4.4 to select in what type of facility the controller is located (breeder, broiler or turkey).

When the egg room is used, the PRO-VISION also keeps a tally of the number of eggs produced each day (the egg tally includes the daily count of produced, cracked and floor eggs as well as the daily average egg weight) and finally allows setting the time clocks with a weekly schedule. Refer to section 14.4 to access the egg count menu and refer to section 9.1 to set the egg room time clocks.

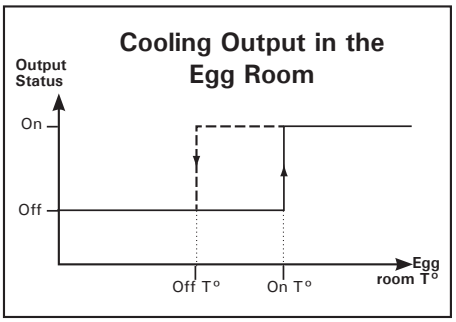
Reference Temperature: All egg room outputs operate according to the egg room temperature. Refer to section 4.5 to select which temperature sensors are located in this room.

Relative Humidity in the Egg Room: If the egg room is enabled and the controller uses a relative humidity (RH) sensor, the RH sensor must be located inside the egg room.

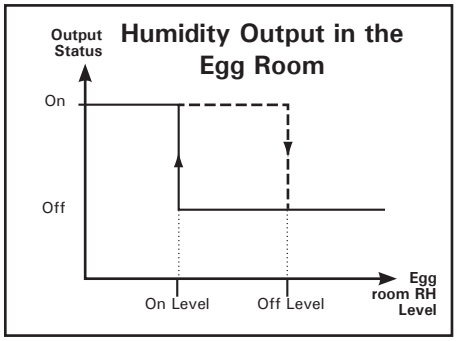
Egg Room Heating Output: The controller can control 1 heating output in the egg room. This output starts when the egg room temperature gets lower than its *"On Temperature"* and stops when the egg room temperature reaches its *"Off Temperature"*.



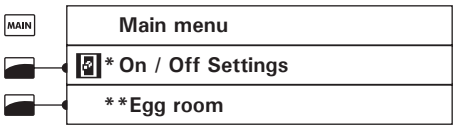
Egg Room Cooling Output: The controller can control 1 cooling output in the egg room. This output starts when the egg room temperature reaches its *"On Temperature"* and stops when the egg room temperature gets lower than the its *"Off Temperature"*.



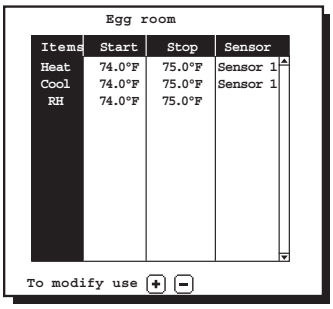
Egg Room Humidity Output: The controller can control 1 relative humidity (RH) output in the egg room. This output starts when the RH level in the egg room gets lower than its *"On RH level"* and stops when the RH level reaches its *"Off RH level"*.



1. Select:



** A password may be required to access this menu (see section 4.2.1).*
** * This menu is accessible if the breeder mode is enabled in the Set-up menu (see section 4.4).*



2. Set the following parameters:

Heat On/Off temperatures — Set the temperature below which the egg room heating output starts and above which it stops. Note that the *"Off Temperature"* must be greater than the *"On Temperature"*.

Cool On/Off temperatures — Set the temperature at which the egg room cooling output starts and below which it stops. Note that the *"Off Temperature"* must be lower than the *"On Temperature"*.

On/Off humidity levels — Set the relative humidity level at which the egg room humidity output starts and below which it stops. Note that the *"Off RH level"* must be lower that the *"On RH level". * This output is accessible if the RH Sensor is enabled in the Set-up menu (see section 4.4.).*

Sensor — Select which temperature sensor is used to control the egg room heating & cooling outputs. Note that the same sensor can be used to control both outputs.

12. RELATIVE HUMIDITY (RH) COMPENSATION

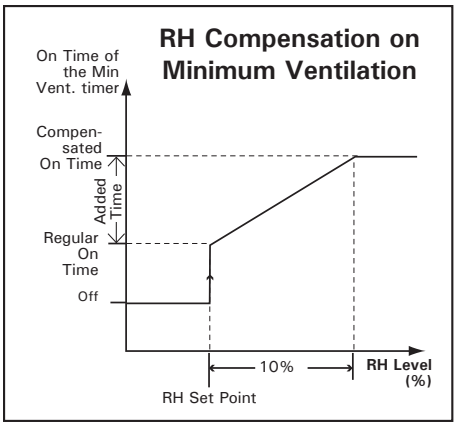
The controller can automatically adjust the value of certain parameters as a function of the relative humidity (RH) level. This section explains how each RH compensation function works and how to program them.

The relative humidity compensation functions are only available if the controller is used in a broiler or turkey facility (in a breeder facility, the RH sensor is used to control a humidity output in the egg room).

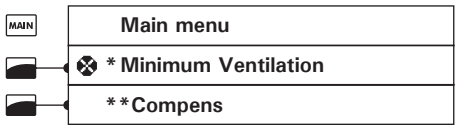
12.1. High RH Comp.on the Min Vent. Timer

The controller can compensate for a high humidity levels by increasing the level of minimum ventilation. As the RH level rises, the controller increases the *"On Time"* portion of the minimum ventilation timer to compensate for the change. The maximum compensated *"On Time"* is reached when the RH level is 10% above the RH set point.

Refer to section 5.1 to adjust the RH set point and refer to the Set-up menu in section 4.4 to enable this RH compensation method (*"Use RH min vent. compensation"*).

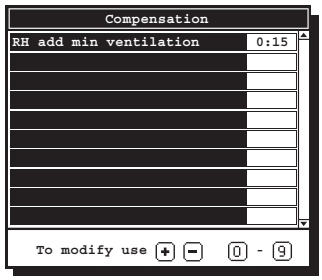


1. Select:



**A password may be required to access this menu (see section 4.2.1).*

** * This menu is accessible if the "Use RH min vent. compensation" option is enabled in the Set-up menu (see section 4.4).*

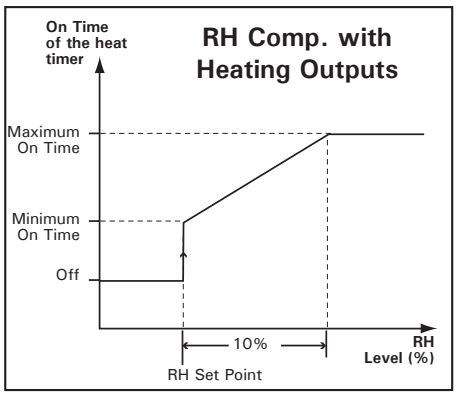


2. Set the following parameters:

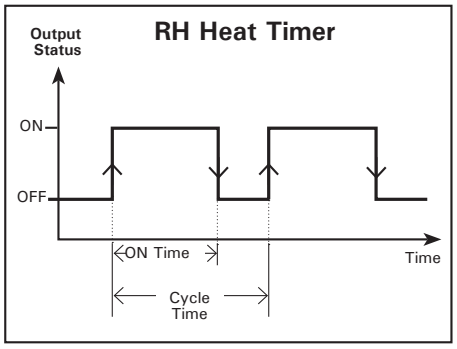
RH add min ventilation — Select the maximum amount of time that can be added to the *"On Time"* portion of the minimum ventilation timer.

12.2. High RH Compensation with the Heaters

The controller can compensate for high humidity levels by activating the heaters in timer mode. As the RH level increases, the controller increases the *"On Time"* portion of the heating timer to compensate for the change. The maximum compensated heating *"On Time"* is reached when the RH level is 10% above the RH Set Point.

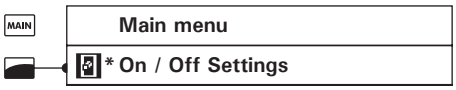


The RH heat timer is composed of an *"On Time"* and of a *"Cycle Time"*. The heaters run during the *"On Time"* and then stop until the end of the *"Cycle Time"*. The *"On Time"* portion of this cycle increases as the RH level increases.



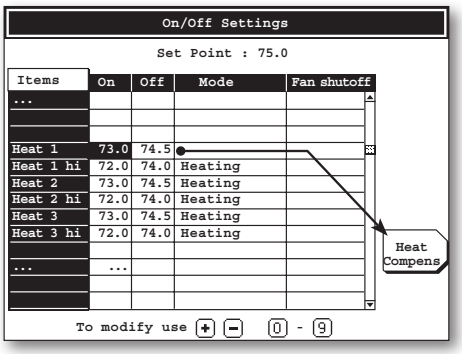
Refer to section 5.1 to adjust the RH set point and refer to the Set-up menu to enable this RH compensation method (*"Use heater RH compensation"* parameter in section 4.4).

1. Select:

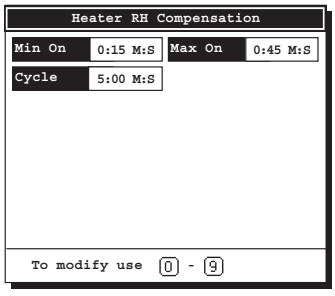


**A password may be required to access this menu (see section 4.2.1).*

2. Use the arrow keys to scroll down and select any heating output.



3. Select the *"Heat Compens"* tab with the menu selectors. **This tab is accessible if the Use heater RH compensation" option is enabled in the Set-up menu (see section 4.4).*



4. Set the following parameters:

Heat Min/Max On — Set the minimum and maximum *"On Times"* of the RH heat timer.

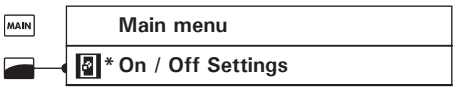
Cycle Time — Set the *"Cycle Time"* of the RH heat timer.

12.3. RH Compensation with the Cooling Outputs

Low RH Compensation: The controller can compensate for low humidity levels by activating the cooling outputs in timer mode. The cooling output start being used for this purpose when the RH level falls below a user-defined level.

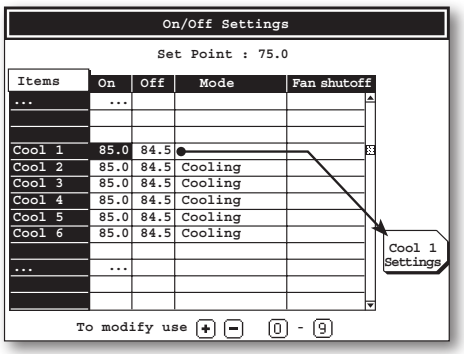
High RH Compensation: The controller can compensate for high humidity levels by stopping all cooling outputs. When this RH compensation mode is used, all cooling outputs stop when the RH level reaches the RH set point. Refer to section 5.1 to adjust the RH set point.

1. Select:

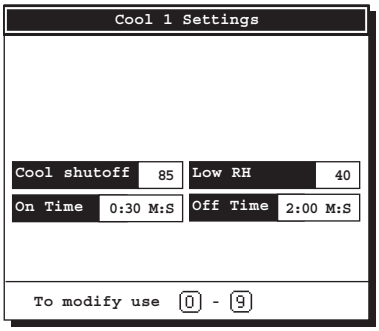


**A password may be required to access this menu (see section 4.2.1).*

2. Use the arrow keys to scroll down and select any cooling output. **These outputs are available if they have previously been enabled in the Set-up menu (see section 4.4).*



3. Select the *"Cool #x Settings"* tab with the menu selectors.



4. Set the following parameters. Note that the RH compensation settings are common to all cooling outputs:

Cool Shutoff — Set the humidity level above which the cooling outputs must stop being used. ** This parameter is accessible if the "RH shutoff cooling" option is enabled in the Set-up menu (see section 4.4).*

Lo RH— Set the humidity level below which the cooling outputs must start running in timer mode. ** This parameter is accessible if the "Activate cooling on low RH" option is enabled in the Set-up menu (see section 4.4).*

On & Off Times — Set the *"On* & *Off Times"* of the Lo RH Cooling timer. **These parameters are accessible if the "Activate cooling on low RH" option is enabled in the Set-up menu (see section 4.4).*

13. ALARMS

When an alarm occurs, the Alarm pilot light turns red and the alarm condition is posted to the alarm log menu. The table on the right gives a list of all possible alarm conditions.

Alarm Conditions
Low temperature alarm
High temperature alarm
Critical temperature alarm
Low static pressure (P.E.) alarm
High static pressure (P.E.) alarm
Sensor #x defective
Outside sensor defective
Static pressure (P.E.) sensor defective
Relative humidity (RH) sensor defective
Breaker Hi temperature alarm
Feeder #x run time exceeded
0-10V #x error
Water Meter #x Spill
Amp draw alarm
Empty zone alarm

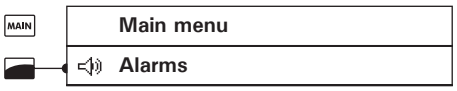
Another alarm situation occurs when power to the controller fails. In this case, the alarm relay is activated. When the alarm relay is activated, the normally open contact (⊸ ⊸) closes.

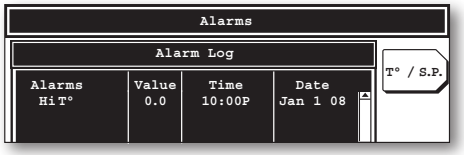
Backup Thermostat Warning:
Each time the Set Point changes of 4.0°F (2.2°C), the controller displays a reminder asking to adjust the backup thermostats. Press any key to make this warning disappear.

13.1. Alarm Log

The alarm log displays a list of the 75 most recent alarm events.

1. Select:

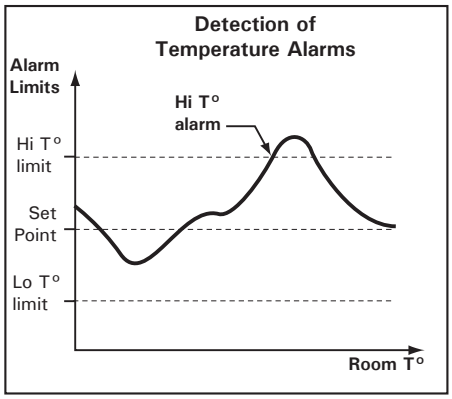




13.2. Temperature Alarms

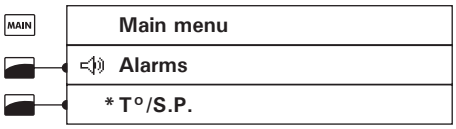
When the average room temperature exceeds the high temperature alarm setting, a high temperature alarm is declared; likewise, a low temperature alarm is declared when the average room temperature falls below the low temperature alarm settings. Although these settings are entered by the user as absolute values, they are defined based on the temperature set point which mean they are adjust automatically if the set point changes.

The situation is slightly different when the outside temperature is greater than the room set point. In this case, the outside temperature becomes the reference point (instead of using the set point as a the reference). This means an alarm is declared when the room temperature reaches *Outside Temperature + High Alarm Offset* (the offset being the difference between the high alarm temperature setting and the set point). A third parameter, called the *Critical Temperature*, is defined to continue monitoring the indoor temperature for high temperatures. When the indoor temperature reaches the critical high temperature (defined as an absolute value), an alarm is declared.

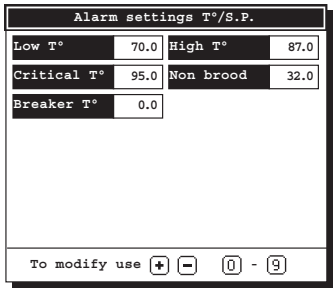


Clean Mode Temperature Alarms: The controller can monitor low temperature alarms when it operates in clean mode. If this low temperature alarm condition is used, the controller sets off an alarm when the ambient temperature falls below the clean mode's low temperature alarm limit. **Note that this alarm limit is related to the non-brood set point, which means it automatically adjusted if the non-brood set point changes.*

1. Select:



**A password may be required to access this menu (see section 4.2.1).*



2. Set the following parameters:

Low /High T° — Select the room temperature below and above which a temperature alarm must set off.

Critical temperature — Set the absolute temperature above which a critical temperature alarm must set off. Note that this alarm limit can also be adjusted automatically with time. Refer to the following section to get further information about the critical temperature ramp. * *This parameter is accessible if the critical alarm condition is enabled in the Set-up menu (see section 4.4).*

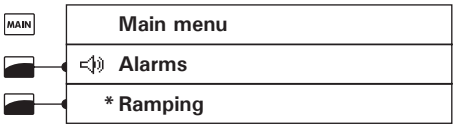
Non brood — Set the temperature below which a temperature alarm is set off in an empty zone and during the clean mode.

Breaker T° — If the controller monitors the temperature of the main breaker, select the temperature at which it must set off an alarm. ** This parameter is accessible if the breaker's temperature monitoring function is enabled in the Set-up menu (see section 4.4).*

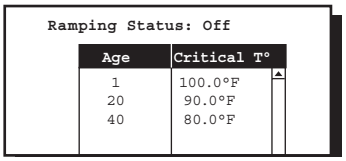
13.2.1. Critical Temperature Ramp

The controller can automatically change the critical temperature alarm limit over time with a three-step ramp. Each step specifies associates a critical temperature alarm limit with an animal age. Once the steps are defined and the ramp is activated, the controller changes the critical alarm limit in a linear fashion between consecutive steps of the ramp. When the last step is reached, the controller keeps using the alarm limit associated with it until a new flock starts.

1. Select:



**This menu is accessible if the outside temperature sensor is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*

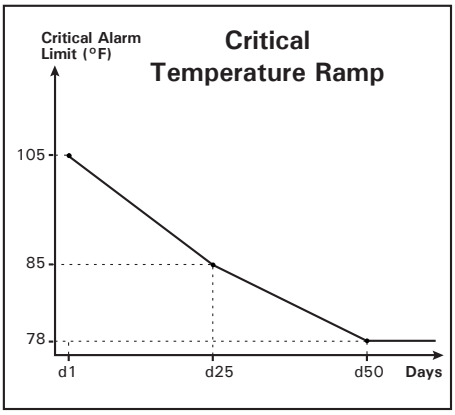


2. Set the following parameters. **The parameters below are common to all programs.*

Critical Alarm Ramp — This is the status of the alarm ramp. Prior to activating the ramp, make sure the parameters below are set properly.

Age — Set the age at which each step starts. The age ranges from -5 to 450 days (negative values are used to prepare the house before letting the animals in).

Critical T° — Assign a critical temperature alarm limit with each step of the ramp.



13.2.2. Static Pressure Alarms

The controller can set off an alarm when the static pressure (S.P.) level exceeds the high or low pressure alarm limit for a certain period of time.

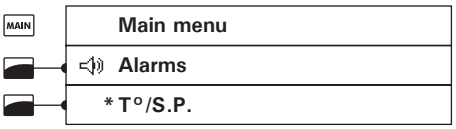
Note that the static pressure alarm conditions are not monitored while the controller is in natural ventilation.

• **Low Static Pressure Alarm:** When a low pressure alarm occurs, the controller switches on the alarm relay and the low pressure alarm relay (the low pressure relay can be used to activate additional fans for instance). Refer to section 4.7 to enable this type or relay.

• **Low Static Pressure Alarm in Minimum Ventilation:** In minimum ventilation, the controller only monitors the low pressure alarm condition while the fans are running (i.e., during the *"On Time"* portion of the minimum ventilation cycle).

• **High Static Pressure Alarm:** When a high static pressure alarm occurs, the controller switches on the alarm relay and opens all air inlets (sidewall vent, attic vent and tunnel inlets). The inlets open continuously until the pressure level gets back in the acceptable pressure range and until the user acknowledges the alarm by accessing the alarm log menu.

1. Select:



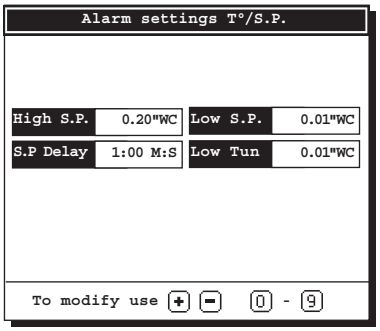
**A password may be required to access this menu (see section 4.2.1). In addition, this menu is only accessible if the controller uses the sidewall and/or tunnel ventilation modes (i.e., if at least 1 fan or tunnel fan is enabled in the Set-up menu).*

2. Set the following parameters:

High / Low S.P. — Set the pressure levels below and above which an alarm is declared. ** These parameters are accessible if a static pressure sensor is enabled in the Set-up menu (see section 4.4).*

S.P. Delay — The high or low pressure condition must be maintained all along this period of time for the controller to set off the alarm. Set the static pressure alarm delay to the desired value. ** This parameter is accessible if a static pressure sensor is enabled in the Set-up menu (see section 4.4).*

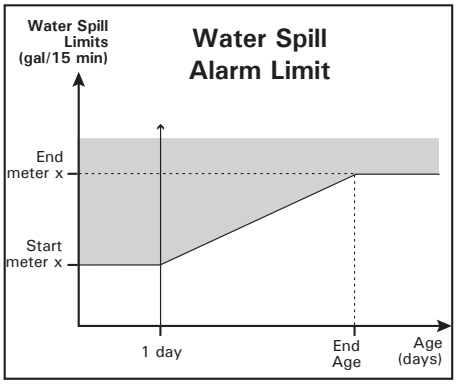
Low Tun — Set the pressure level below which a low pressure alarm must set off when the controller is in tunnel ventilation. ** This parameter is accessible if a pressure-based tunnel inlet is enabled in the Set-up menu (see section 4.4).*



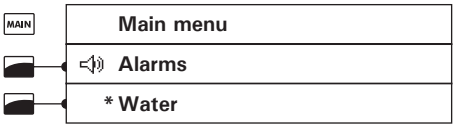
13.2.3. Water Spill Alarm

A water spill alarm is declared when the water consumption exceeds the acceptable limit. This limit ranges from 0 to 10,000 gallons or liters per 15 minutes.

The controller can also adjust the water spill limit of each water meter automatically as the animals are growing. The water spill alarm limit changes in a linear fashion between 2 user-defined steps: the first step being the maximum water consumption allowed at the beginning of the flock (-5 days) and the second step being the maximum consumption at the end of the flock.

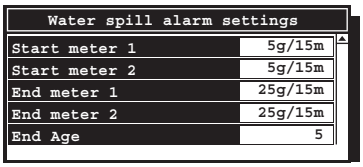


1. Select:



**This menu is accessible if at least 1 water meter in enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*

2. Set the following parameters. **The parameters below are common to all programs.*



Start meter 1-2 — Set the maximum allowable amount of water that can be consumed by the birds at the beginning of the flock in per 15-minute period. Set this parameter separately for each water meter in use. It ranges from 0 to 10,000 gallons (or liters).

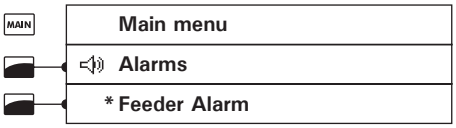
End meter 1-2 — Set the maximum allowable amount of water that can be consumed by the birds at the end of the flock in per 15-minute period. Set this parameter separately for each water meter in use. It ranges from 0 to 10,000 gallons (or liters).

End Age — Select the age at which the flock ends. When it is reached, the controller keeps using the water spill alarm limit defined for that day until a new flock begins. ** This parameter is common to both water meters.*

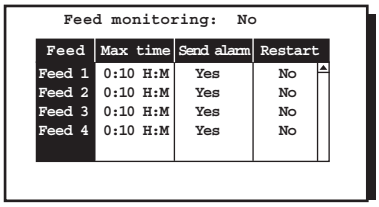
13.2.4. Feeder Alarm

The controller can declare an alarm if a feeder runs continuously for a too long period of time. When this type of alarm occurs, the relay associated with the problematic feeder opens in order to stop the feeder motor.

1. Select:



**This menu is accessible if a feeder is enabled in the Set-up menu (see section 4.4). A password may also be required to access it (see section 4.2.1).*


Feed monitoring: No
Feed Max time Send alarm Restart
Feed 1 0:10 H:M Yes No
Feed 2 0:10 H:M Yes No
Feed 3 0:10 H:M Yes No
Feed 4 0:10 H:M Yes No

Feed monitoring — Select *"Yes"* to enable the feeder monitoring function.

Max Run Time — Set the maximum run time of each feeder separately.

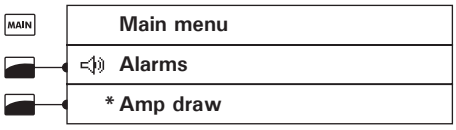
Send alarm — Select *"Yes"* for an alarm to set off when the run time of a feeder exceeds its respective maximum time.

Restart — When a run time alarm occurs, the controller opens the relay associated with the feeder in order to stop the feeder motor. After a run time error occurred, select *"Yes"* to allow the feeder motor to restart.

13.2.5. Amperage Draw Alarm

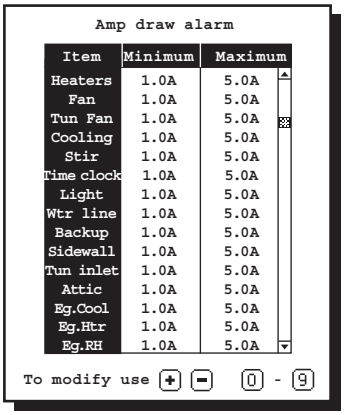
If current sensors are used, the controller can set off an alarm if the amperage draw of an output gets out of range.

1. Select:



**This menu is accessible if at least 1 relay uses a current sensor. A password may also be required to access it (see section 4.2.1).*

A table containing all outputs that are using a current sensor is displayed. Refer to section 4.8.1 to specify what relays are using this type of sensor.



Minimum / Maximum — Select the acceptable amperage draw range for each output that uses a current sensor.

13.2.6. 0-10V Output Error

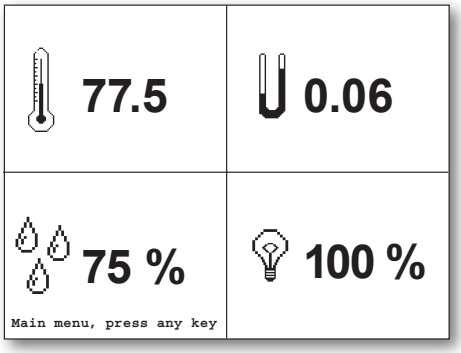
The controller signals a 0-10V output error when the output voltage is 0.5V above or below the target voltage and sets off an alarm if the voltage difference increases to 1.0V. A 0-10V error is likely to occur if the load connected to the output exceeds the output's rating (30 mA) or if there is electrical noise on the output.

14. MONITORING FUNCTIONS

14.1. Current Conditions

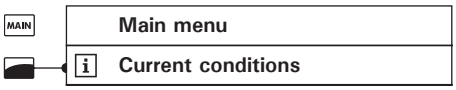
14.1.1. Current Condition Screen Saver

The current condition screen saver gives a quick overview of the actual conditions in the barn. This screen is automatically displayed after 5 minutes of inactivity and shows the basic conditions in the room: temperature, static pressure level, humidity level and light intensity.



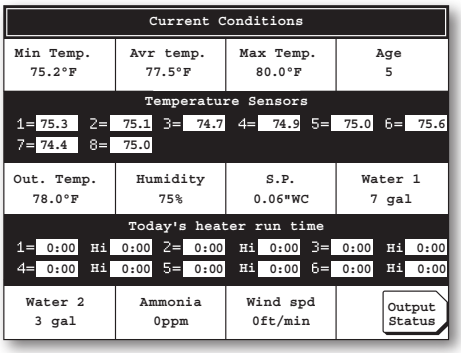
14.1.2. Current Input/Output Status

1. Select:

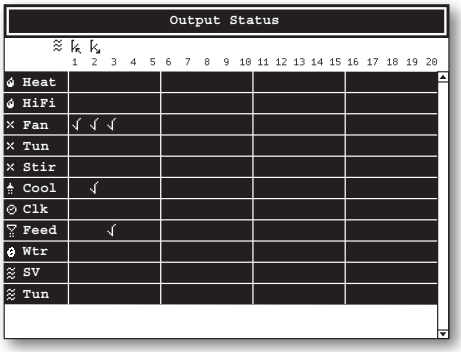


The controller displays the current reading of each input along with other useful information such as temperature and heater run times.

It is also possible to refine this screen display by removing some pieces of information from it, such as the individual reading of the temperature sensors and the run time of the heaters. Refer to the Set-up menu in section 4.4 to modify the information displayed on the current condition screen.


Current Conditions
Min Temp. 75.2°F
Avr temp. 77.5°F
Max Temp. 80.0°F
Age 5
Temperature Sensors
1= 75.3 2= 75.1 3= 74.7 4= 74.9 5= 75.0 6= 75.6
7= 74.4 8= 75.0
Out. Temp. 78.0°F
Humidity 75%
S.P. 0.06"WC
Water 1 7 gal
Today's heater run time
1= 0:00 Hi 0:00 2= 0:00 Hi 0:00 3= 0:00 Hi 0:00
4= 0:00 Hi 0:00 5= 0:00 Hi 0:00 6= 0:00 Hi 0:00
Water 2 3 gal
Ammonia 0ppm
Wind spd 0ft/min
Output Status

2. Select the *"Output Status"* tab with the menu selectors. A table containing the status of each output is displayed.



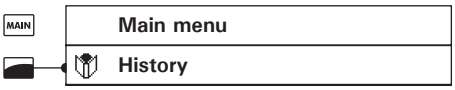
Below is a table showing the meaning of all possible output status.

Display		Meaning
Heat	1-32 (√)	Heater #x is active.
HiFi	1-16 (√)	Hi Fire Heater #x is active.
Fan	1-5 (√)	Fan #x is active.
Tun	1-20 (√)	Tunnel fan #x is active.
Stir	(√)	Stir fan is active.
Cool	1-6 (√)	Cooling output #x is active.
Clk	1-8 (√)	Time clock #x is active.
Feed	1-4 (√)	Feeder #x run time monitoring relay is closed (no run time alarm)
Wtr	1-8 (√)	Water flush output #x is active.
SV	f_k / f_s (√)	The sidewall vent is closing/opening
AV	f_k / f_s (√)	The attic vent is closing/opening.
Tun	f_k / f_s (√)	Tunnel inlet 1 is closing/opening.
Tun2	f_k / f_s (√)	Tunnel inlet 2 is closing/opening.
Nat	f_k / f_s (√)	Natural curtain 1 is closing/opening
Nat2	f_k / f_s (√)	Natural curtain 2 is closing/opening
Htr	(√)	Egg room heating output
Cool	(√)	Egg room cooling output
RH	(√)	Egg room humidity output

14.2. History Menus

The history menus provide a daily record of the house conditions. The information contained in these menus is logged at midnight everyday.

1. Select:



2. By default, the controller displays the average temperature history at first. Use the menu selector to select the desired type of history:

Average — This menu contains the daily minimum and maximum readings of the average temperature of the past 400 days (or since the beginning of the flock).

T° Sensors — This menu contains the daily minimum and maximum temperature readings of each inside & outside temperature sensors of the past 7 days.

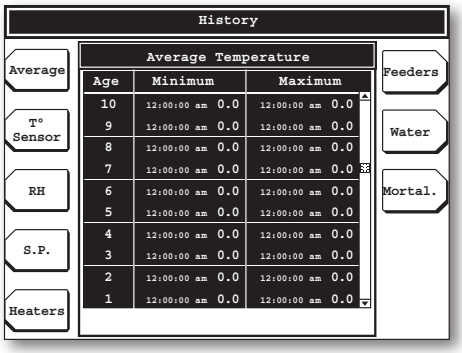
RH — This menu contains the daily minimum and maximum relative humidity readings of the past 400 days (or since the beginning of the flock). ** This history menu is accessible if a humidity sensor is enabled in the Set-up menu (see section 4.4).*

S.P.— This menu contains the daily minimum and maximum static pressure readings of the past 400 days (or since the beginning of the flock). ** This history menu is accessible if a static pressure sensor is enabled in the Set-up menu (see section 4.4).*

Heaters — This menu contains the daily run time of each heating output of the past 400 days (or since the beginning of the flock)

Feeders — This menu contains the daily run time of each feeder of the past 400 days (or since the beginning of the flock). ** This history menu is accessible if a feeder is enabled in the Set-up menu (see section 4.4).*

Water— This menu contains the daily water consumption of each water meter of the past



400 days (or since the beginning of the flock). ** This history menu is accessible if a feeder is enabled in the Set-up menu (see section 4.4).*

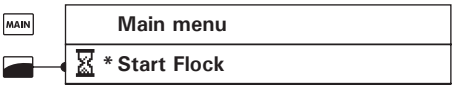
Mortal — This menu contains the daily number of mortalities recorded in the past 400 days (or since the beginning of the flock).

14.3. Animal Age & Count

Animal Age: Some parameters of the controller can automatically change over time as the animals grow up (temperature ramps, light programs, etc.).

Animal Count & Mortality: In order to keep the animal count, you must first specify the initial number of animals at the beginning of a flock. You must then update the animal count when mortality occurs.

1. Select:



** A complete-access password may be required to access this menu (see section 4.2.1).*

On top of the *"Start flock"* menu are some information about the current breeding (total number of mortalities, # of remaining birds and loss rate). These values are displayed as a reference only and cannot be modified.

2. Set the following parameters:

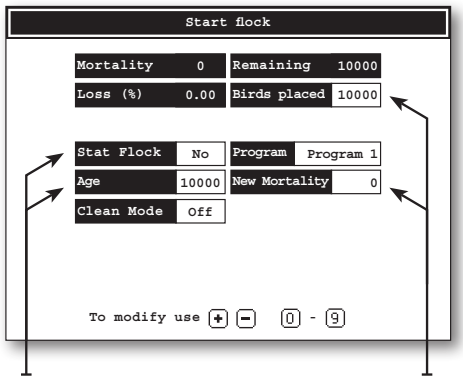
Age — The animal age ranges from -5 days to 450 days. Negative day values are used to prepare the house before letting the animals in.

Birds placed — Specify the initial number of birds.

Start Flock — Before starting a new flock, make sure the number of birds placed is set properly.

ALL information contained in the history menus of the controller are reset when a new flock starts.

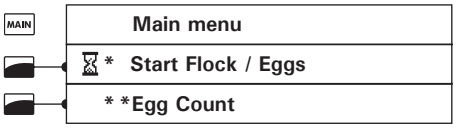
New Mortal. — Post the number mortalities as it occurs. Once it is validated, the value automatically goes back to "0". The posted value is added to the *"Mortality"* count and removed from the *"Remaining"* count. Note that it is always possible to enter a negative value with the +/- key in order to readjust the number of mortalities if a mistake is made.



14.4. Egg Count

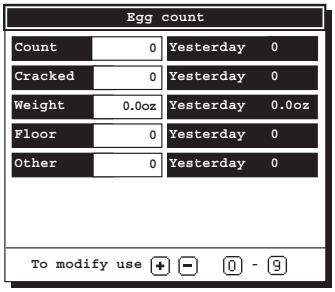
If it is used in a breeder facility, the controller offers an egg count menu. Refer to the Set-up menu in section 4.4 to select in what type of facility the controller is located (breeder, broiler or turkey).

1. Select:



** A complete-access password may be required to access this menu (see section 4.2.1).*

** This tab is accessible if the "Breeder" application is enabled in the Set-up menu (see section 4.4.).*

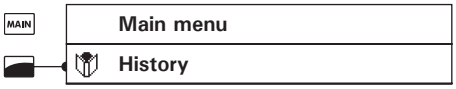

Egg count
Count 0 Yesterday 0
Cracked 0 Yesterday 0
Weight 0.0oz Yesterday 0.0oz
Floor 0 Yesterday 0
Other 0 Yesterday 0
To modify use + - 0 - 9

On the left hand side of the screen are today's egg count values. Update these values as required. On the right hand side are yesterday's values. These values are displayed for comparison purposes only, they cannot be modified.

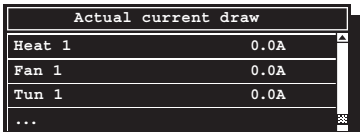
14.5. Operation Costs & Current Consumption

If there are current sensors on some of the controller outputs, the PRO-VISION can display the operation cost and amperage draw of these outputs. Refer to section 4.7 to assign a current sensor to a relay.

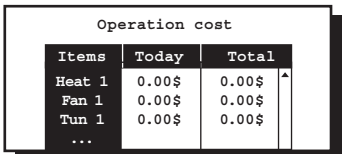
1. Select:



2. Select the *"Actual Current"* tab with the menu selectors to display the amperage draw of all the outputs that are using a current sensor. ** This tab is accessible if at least 1 relay uses a current sensor and if this relay is actually assigned to an output (see section 4.7).*



3. Select the *"Operation Cost"* tab with the menu selectors to see operation cost calculated for each output that uses a current sensor.



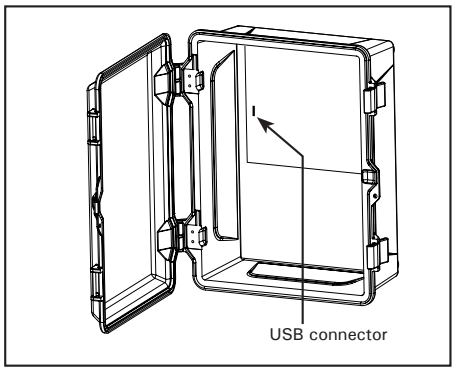
The total cost recorded since the beginning of the flock is also displayed. Note that the operation cost is determined as a function of the run time of the output and as a function of the electricity rates. Please refer to the Set-up menu in section 4.4 to specify the current electricity rates. ** This tab is accessible if at least 1 relay uses a current sensor and if the relay is assigned to an output (see section 4.7).*

15. UPDATE & BACKUP

The PRO-VISION can read and write on standard USB memory cards which makes it easy to create a backup of you controller or to upload a new configuration in it. Note that once your system's configuration is saved on a memory card, it can then be transferred on a home computer, palm pilot or it can be uploaded in another controller of the same type.

NO USB memory card is provided with the system. You can purchase one in any good electronic store.

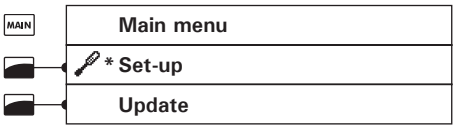
Connecting the Memory Card: Open the latches and lift the cover. Now, insert the USB card in the USB connector located on the electronic board inside the enclosure.



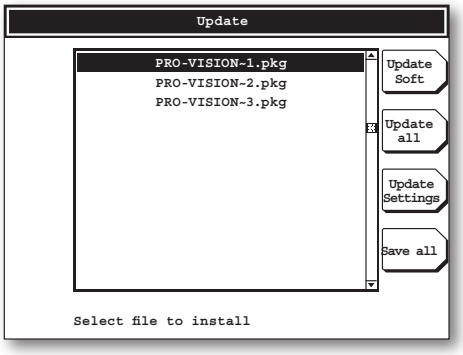
Configuration Files (*.pkg): The controller only recognizes the configuration files with the *.pkg extension. In addition, the files must be located at the root of the USB memory card otherwise, the controller will not see them (it cannot access any sub-directory). In order to erase or rename a configuration file, you must access your USB memory card via a computer (or palm pilot).

Furthermore, when uploading one of these files in the control, it is possible to upload only 1 of its 2 components: the software or the parameters settings. It is thus possible to upgrade your controller without loosing your parameter settings for instance.

1. Select:



** A complete-access password may be required to access this menu (see section 4.2.1).*



2. Making a backup:

Press the *"Save All"* tab in order to save your PRO-VISION software and parameter settings on the USB card. Each time you make a backup of your control, the controller creates a new PRO-VISION~X.pkg file at the root of the memory card. If this file name already exists, it will be saved under a different name ("PRO-VISION~1.pkg" for instance). This way, the controller will never erase a file on the card.

3. Loading new settings and/or software:

In order to load a new software and/or parameter settings, select the desired configuration file from the scrolling list and then select the proper *"Update"* tab with the menu selector. Here are the different possibilities:

⚠ ***The PRO-VISION can only read the files located at the root of the USB memory card. It cannot access any sub-directory!***

Update soft — Press this tab in order to load the software of the selected file into your PRO-VISION controller. This will affect the software of the controller without affecting your parameter settings.

Update settings — Press this tab in order to load the parameter settings of the selected file into your PRO-VISION controller. This transfer will affect the parameter settings of the controller without affecting the software.

Update all — Press this tab in order to load the software & parameter settings of the selected file into your PRO-VISION controller. This will affect the software and parameter settings of the controller.

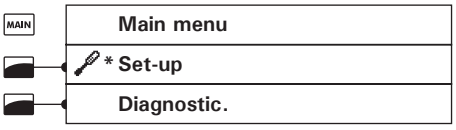
4. Once the transfer is over the controller automatically reboots itself.

5. You can now remove the USB card from the connector.

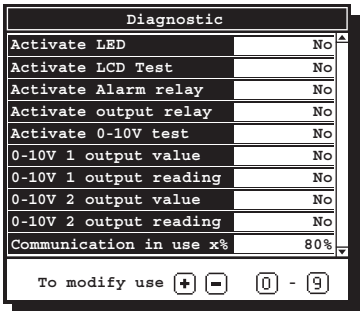
16. DIAGNOSTIC

The diagnostic menu allows testing the controller's hardware.

1. Select:



** A complete-access password may be required to access this menu (see section 4.2.1).*


Diagnostic
Activate LED No
Activate LCD Test No
Activate Alarm relay No
Activate output relay No
Activate 0-10V test No
0-10V 1 output value No
0-10V 1 output reading No
0-10V 2 output value No
0-10V 2 output reading No
Communication in use x% 80%
To modify use + - 0 - 9

2. Activate the desired hardware test:

Activate LED — Use this function to test both colors of the alarm LED.

Activate LCD Test — Use this function to test the LCD screen.

Activate Alarm relay — Use this function to test the alarm relay.

Activate output relay — Type in the relay number associated with the output you want to test or type "0" to end this test.

Activate 0-10V test — Select *"Yes"* to enable the 0-10V test.

0-10V #x output value — Assign the desired voltage to the 0-10V output. The actual 0-10V reading is displayed below. If the assigned value does not match the output reading, make sure there is no electrical noise on the output and make sure that the load connected to the output does not exceed the allowable range (30mA max). **This parameter is accessible if the 0-10V test is enabled above.*

0-10V #x output reading — This is the actual voltage reading of the 0-10V output. It cannot be modified.

Communication in use x% — This is the communication rate currently being used by your controller. If this value gets higher than 100%, the reaction time of your controller is likely to slow down. In order to decrease the communication rate, you can either remove some current sensors from the relay panels or switch to the high-speed communication mode (on condition that your application exclusively uses relay panels with the *"CS"* technology). **Refer to section 4.4 to change the communication speed.*

17. TECHNICAL SPECIFICATIONS

Type.....**PRO-VISION**
Main supply fuse F1..... 1A, fast-blow
Main supply/frequency.....115/230 VAC, 50/60Hz
Enclosure.....ABS, moisture and dust-tight
Operating temperature.....32 to 104°F (0 to 40°C)
Storage temperature.....5 to 122°F (-15 to 50°C)
Ambient relative humidity.....Max. 95%
Pollution degree.....2
Altitude.....Up to 2000m

Outputs:
14Vdc outputs.....14 Vdc±10%, regulated, 350 mA max
0-10V outputs #1-2.....0-10Vdc, 30mA source max
Precision on 0-10V outputs..... ±1 %
Alarm contact.....24 Vac or dc max, 0.15 A

Inputs:
Relative humidity input.....4-20mA
Static pressure input.....4-20mA
Temperature inputs.....1K @ 77°F (25°C), NTC
Ammonia sensor.....4-20mA
Wind speed sensor.....Pulse 2.5mph/Hz
Feeders 1-4.....Dry contact
Water meters 1-2.....Input pulse width > 12ms, 60Hz max

18. INDEX

A

Age. *See Animals*
Alarms
  Alarm conditions 36
  Alarm LED 7
  Alarm log 36
  Backup thermostat warning 36
  Feeder run time alarm 38
  Static pressure alarms
    Low S.P. device relay assignment 14
    Operation & settings 37
  Temperature alarms
    Breaker T°
      Activation 11
      Settings 36
    Critical T°
      Activation 10
      Operation & settings 36
      Ramp 37
    Hi/Lo T° limits 36
    Lo T° limit in non-brood zones 36
  Water spill alarms 38
Ammonia sensor
  Activation 10
  Calibration 13
  Current ammonia level 39
Amperage draw
  Alarm limits 38
  Current sensor
    Activation 11
    Sensor assignment 14
  Current status
    Output amperage draw 41
    Output operation cost 41
  Going rate 11
  Output voltage 12
Anemometer. *See Wind speed*
Animals
  Animal age
    Current age 39
    Settings 40
  Animal count
    Initial number of animals 40
    Posting # of mortalities 40
  Starting a new flock 40–42
Attic
  Attic T° sensor
    Activation 11
    Sensor assignment 13
  Attic vent
    Activation 11
    Amp draw & Operation cost. *See Amperage draw*
    Closing fan stage 21
    Operation & settings 21–22
    Output status 39
    Relay assignment 14
    Static pressure set points 22
  Extracting air from the attic
    Activation 11
    Operation & settings 19

B

Backup
  Backup relay
    Amp draw & Operation cost. *See Amperage draw*
    Relay assignment 14
  Backup thermostat warning 36
  Making a controller backup 41–42
Beeper. *See Keypad beeper*
Birds. *See Animals*
Breaker temperature
  Activate breaker T° monitoring 11
  Hi T° alarm limit 36
  Sensor selection 11
Breeder facility. *See Egg room*
Broiler facility 9
Buttons 7

C

Calibration (Sensors & water meter) 13–14
Celsius units 10
Clean mode
  Activate / deactivate 15
  Clean mode T° set point 16
  Low T° alarms in clean mode
    Activating the alarm condition 15
    Alarm limit 36
  Operation & settings 14
Clock
  Setting the time and date 8
  Time format 10
Clock outputs. *See Time clocks*
Communication rate
  % in use 42
Compensation
  Attic min. vent. compensation. *See Attic*
  Relative humidity comp.. *See Relative humidity comp.*
Connections 6
Contrast (LCD screen) 9
Controller
  Communication rate
    % in use 42
  Diagnostic 42
  Features 5
  Location of the controls 7
  Mounting instructions 6
  Programs 9
  Screen contrast 9
  Set-up menu 9–12
  Software
    Language selection 9
    Upgrade 41–42
    Version 15
  Technical specifications 43
  Update / Backup 41–42
Cooling outputs
  Activation 10
  Amp draw & Operation cost. *See Amperage draw*
  Egg room cooling output. *See Egg room*
  Hi/Lo RH compensation on the cooling output
    Activation 10
    Operation & settings 35
  Operation & settings 26–28
  Output status 39
  Relay assignment 14
Copy & Paste function 9
Critical temperature alarm. *See Alarms*
Current conditions
  Input & outputs conditions 39
  Menu information 12
  Screen saver 39
Current sensor. *See Amperage draw*
Curtains. *See Tunnel inlet or Natural curtain*
Curves. *See Ramping*

D

Date 8
Day / Night
  Day/night times 11
  Minimum ventilation night ramp
    Activation 11
    Operation & settings 18
Diagnostic 42
Digital keypad 7

E

Egg room (breeder facility)
  Egg count menu 41
  Egg room activation 9
  Egg room cooling output
    Amp draw & Operation cost. *See Amperage draw*
    Operation & settings 33
    Relay assignment 14
  Egg room heater
    Amp draw & Operation cost. *See Amperage draw*
    Operation & settings 33
    Relay assignment 14
  Egg room humidity output
    Amp draw & Operation cost. *See Amperage draw*
    Operation & settings 33
    Relay assignment 14
  Egg room time clocks
    Activation 10

Amp draw & Operation cost. *See Amperage draw*
Operation & settings 31
Egg room T° sensors 33
Electrical current sensor. *See Amperage draw*
Electrical specifications 43
Empty zones. *See Non-brood zones*
English software 9

F

Fahrenheit units 10
Fans / Tunnel fans
Amp draw & Operation cost. *See Amperage draw*
Fan shutoff in tunnel mode 25
Fan / Tunnel fan outputs
Activation 10
Current status 39
Relay assignment 14
Minimum ventilation fans. *See also Minimum vent.*
Fan cycling 18
Lateral fan selection 21–22
Tunnel fan selection 25–26
Operation & settings
Lateral fans 21–22
Tunnel fans 24–25
Feeders
Cut-off relay
Output status 39
Relay assignment 14
Feeder run time
Activation of feeder inputs 11
Run time alarm 38
Run time history 40
Flock. *See Animals*

G

Gallons 10

H

Heaters
Activation 10
Amp draw & Operation cost. *See Amperage draw*
Egg room heaters. *See Egg room*
Heater run time
History 40
Today's run time 39
Heaters in non-brood zones. *See Non-brood zones*
Hi Fire heaters. *See also Heaters*
Activation 10
Operation & settings 28
Operation & Settings 28
Output status 39
Relay assignment 14
RH compensation with heaters
Activation 10
Settings 34
Sensor assignment 12
History menus 40
Home key 7
Humidity. *See Relative humidity*

I

Index 44
Inlets. *See Sidewall vent, attic vent or tunnel inlet*
Inputs. *See also Sensors*
Activation 9–12
Input status 39
List of available inputs 5
Installation (Set-up menu)
Parameter settings 9–12
Worksheet 51
Installer password. *See Password*

K

Keypad
Beeper volume 9
Location 7

L

Language selection 9
Lateral ventilation. *See also Sidewall vents & Fans*
Operation & settings 21–22
Overview of the ventilation concepts 17
LCD screen 7
Diagnostic 42
LED (Alarm) 7
Lights
Lights on the 0-10V output
0-10V Wiring 7
Activation 11
Current intensity 39
Diagnostic 42
Operation & Settings 29–31
On/off lights
Activation 14
Amp draw & Operation cost. *See Amperage draw*
Principle of operation 29
Relay assignment 14
Liters 10

M

Main menu shortcut key 7
Measuring units 10
Memory cards (USB) 41–42
Menu selectors 7
Minimum ventilation
Compensation of the "On Time"
According to the attic temperature 19
According to the RH level
Activation 10
Settings 34
Fan cycling 18
Fan selection
Lateral fans 21–22
Tunnel fans 25
Operation & settings 18–20
Overview of the ventilation concepts 17
Pre-opening of sidewall vents in min. vent.
Mode: Automatic or programmable delay 11
Principle of operation 19
Settings 22
Stir fans in min. vent. 11, 27
Minimum ventilation ramp
Night ramp 11
Operation & settings 18–20
Mortality
History 40
Posting new mortalities 40
Mounting instructions 6

N

Natural ventilation
Natural curtain
Activation 10
Sensor assignment 12
Operation & settings 23
Non-brood zones
Low T° alarms in clean mode
Activating the alarm condition 15
Alarm limit 36
Making a non-brood zone 12
Principle of operation 14
T° alarms in non-brood zones 36
T° set point in non-brood zones 16

O

Operation costs 41. *See also Amperage draw*
Outputs. *See also Relays*
Activation 9–12
Amp draw & Operation cost. *See Amperage draw*
Diagnostic 42
List of available outputs 5
Output status 39
Outside temperature. *See Temperature*

P

Parameter adjustment 7
Password
Enable/disable the password 11
Entering/changing the password 8
Retrieving a lost password 8
Pilot light (Alarm) 7
Programs
Copy/paste program settings 9
Enabling programs 10
Principle of operation 9
Program selection 9

R

Ramping
- Critical T° alarm limits 37
- Minimum ventilation - On Time ramp 18
- Temperature set point ramp 16
- Water spill alarm limits 38

Relative humidity (RH)
- RH Compensation (broiler facility only)
  - Hi RH Comp. on the min. ventilation timer
    - Activation 10
    - Settings 34
  - Hi RH Comp. with the cooling outputs
    - Activation 10
    - Settings 35
  - Hi RH Comp. with the heaters
    - Activation 10
    - Settings 34
  - Lo RH Comp. with the cooling outputs
    - Activation 11
    - Settings 35
- RH sensor
  - Activation 10
  - Calibration 13
  - Current sensor reading 39
  - History 40
- RH Set point 16. *See*

Relays
- Relay assignment 13–14
- Relay assignment worksheet 49
- Relay panel ID numbers 13
- Relays with current sensors 14
- Total number of relays 11

S

Screen saver 39

Screens (LCD)
- Contrast 9
- Location 7

Sensors
- Connection 7
- Electrical current sensor. *See Amperage draw*
- Extension 7
- Relative humidity sensor. *See Relative humidity*
- Static pressure. *See Static pressure (S.P.)*
- Temperature sensors. *See Temperature*

Set points
- RH set point. *See Relative humidity*
- Static pressure set points. *See Static pressure*
- Temperature set point. *See Temperature*

Set-up menu
- Parameter settings 9–12
- Worksheet 51

Sidewall ventilation. *See also Fans & Sidewall vents*
- Operation & settings 21–22
- Overview of the ventilation concepts 17

Sidewall vents
- Activation 11
- Amp draw & Operation cost. *See Amperage draw*
- Closing the vents in tunnel mode 25
- Operation & settings 21–22
- Output status 39
- Pre-opening of the vents in min. vent.
  - Automatic/manual mode 11
  - Principle of operation 19
  - Settings 22
- Relay assignment 14
- Static pressure alarms in sidewall vent. 37
- Static pressure set points 22

Simulation (temperature) 15

Spanish software 9

Static pressure (S.P.)
- Low S.P. alarm device
  - Principle of operation 37
  - Relay assignment 14
- S.P. alarm limits 37
- S.P. Measuring units 10
- S.P. Sensor
  - Activation 10
  - Calibration 13
  - Current sensor reading 39
  - History 40
- Static pressure set points
  - Attic vent S.P. set points 22
  - Sidewall vent S.P. set points 22
  - Tunnel inlet S.P. set points 26

Stir fans
- Activation 11
- Amp draw & Operation cost. *See Amperage draw*
- Operation & settings 27
- Output status 39
- Relay assignment 14
- Stir fan mode 11

T

Technical specifications 43

Temperature
- Average room temperature
  - Current average T° 39
  - History 40
  - Sensor assignment 12
  - Today's Min/Max T° 39
- Inside temperature sensors
  - Activation 10
  - Current sensor readings 39
  - History 40
  - Sensor assignment 12–14
  - Sensor calibration 13
- Outside temperature sensor
  - Activation 10
  - Current sensor reading 39
  - History 40
  - Hot & Cold T° (for pressure set points) 22
  - Sensor calibration 13
- Temperature alarm limits
  - Breaker's temperature limit 36
  - Critical T°
    - Critical T° ramp 37
    - Operation & settings 36
  - Hi/Lo Temperature limits 36
  - Non-brood zone's low T° limit 36
- Temperature set point
  - Clean mode T° set point 16
  - Operation & settings 16
  - Set point ramp 16
- Temperature simulation 15
- Temperature units 10

Test mode 15

Thermostat warning 36

Time
- Setting the time and date 8
- Time format 10

Time clocks
- Activation 10
- Amp draw & Operation cost. *See Amperage draw*
- Clock mode selection (Start-Run/Stop) 10
- Fans following time clocks 21
- Operation & settings
  - In a breeder facility 31
  - In a broiler facility 30
- Output status 39
- Relay assignment 14
- Tunnel fans following time clocks 24

Tunnel fans. *See Fans / Tunnel fans*

Tunnel inlet
- Amp draw & Operation cost. *See Amperage draw*
- Output status 39
- Pressure-based tunnel inlet
  - Activation 11
  - Operation & settings 25–26
  - Relay assignment 14
  - Standby mode 24
  - Static pressure set points 26
- Temperature-based tunnel inlet
  - Activation 11
  - Principle of operation 25
  - Relay assignment 14
  - Standby mode 24
  - Tunnel openings 25

Tunnel ventilation
- Before official tunnel v. startup (transition)
  - Principle of operation 24
  - Settings 25
- Closing sidewall vents in tunnel mode 25
- Fan shutoff in tunnel mode 25
- Official start-up of tunnel ventilation
  - Principle of operation 24
  - Settings 25
- Overview of the ventilation concepts 17
- Pre-opening the tunnel inlet
  - Pre-opening mode : auto/manual 11
  - Pre-opening of the temperature-based inlet 25

Settings 26
Static pressure alarms in tunnel vent. 37
Tunnel on standby 24
Tunnel sensors
Principle of operation 24
Sensor assignment 12

U

Units of measurement 10
USB memory stick 41–42
User password. *See Password*

V

Ventilation
Fans. *See Fans / Tunnel fans*
Min. ventilation. *See Minimum ventilation*
Stir fans. *See Stir fans*
Ventilation concepts 17
Vents. *See Sidewall vent, Attic vents or Tunnel inlet*
Version (software) 15
Voltage. *See Amperage draw*
Volume (keypad) 9

W

Water line flush outputs
Activation 10
Amp draw & Operation cost. *See Amperage draw*
Operation & settings 32
Output status 39
Relay assignment 14
Water meter
Activation 10
Calibration 13
Consumption history 40
Measuring units 10
Water consumption
Today 39
Water spill alarm 38
Wind speed sensor
Activation 10
Current wind speed 39
Wiring 6
Worksheet
Contact names & addresses 48
Relay assignment 49
Set-up menu 51

[EN] WORKSHEET

CLIENT

Name: _____

Address: _____

_____

_____

City: _____

Tel.: _____

Fax: _____

E-mail: _____

INSTALLER

Name: _____

Address: _____

_____

_____

City: _____

Tel.: _____

Fax: _____

E-mail: _____

[ES] HOJAS DE TRABAJO

CLIENTE

Nombre: _____

Dirección: _____

_____

_____

Ciudad: _____

Teléfono: _____

Fax: _____

Email: _____

INSTALADOR

Nombre: _____

Dirección: _____

_____

_____

Ciudad: _____

Teléfono: _____

Fax: _____

Email: _____

Relay Assignment Worksheet

Write down the function of each relay. This function must be set separately for each program in use. Below is a table showing all possible relay functions:

- Heater 1-32
- Hi Fire 1-16
- Fan 1-5
- Tunnel Fan 1-20
- Feeder 1-4
- Cooling 1-6
- Clock 1-8
- Flush output 1-8
- Stir fan
- Lights
- Backup relay
- Low SP
- SV-C *(sidewall vents close)*
- SV-O *(sidewall vents open)*
- AV-C *(attic vents close)*
- AV-O *(attic vents open)*
- NT1-C *(Natural curtain 1 closes)*
- NT1-O *(Natural curtain 1 opens)*
- NT2-C *(Natural curtain 2 closes)*
- NT2-O *(Natural curtain 2 opens)*
- TN1-O *(tunnel inlet 1 opens)*
- TN1-C *(tunnel inlet 1 closes)*
- TN2-O *(tunnel inlet 1 opens)*
- TN2-C *(tunnel inlet 1 closes)*

Plantilla de asignación de relés

Escriba la función de cada relé. Esta función debe configurarse por separado para cada programa en uso. A seguir una tabla con todas las posibles funciones de relé:

- Calentador 1-32
- Cal. fuego máx 1-16
- Ventilador 1-5
- Ventil. túnel 1-20
- Alimentador 1-4
- Enfriamiento 1-6
- Reloj 1-8
- Purga agua 1-8
- Ventil. de circulación
- Luces
- Relé de respaldo
- Dispositivo de PE Baja
- VL-C *(vent. lateral se cierre)*
- VL-A *(vent. lateral se abre)*
- VA-C *(vent. ático se cierre)*
- VA-A *(vent. ático se abre)*
- CN1-C *(Cortina natural 1 se cierre)*
- CN1-A *(Cortina natural 1 se abre)*
- CN2-C *(Cortina natural 2 se cierre)*
- CN2-A *(Cortina natural 2 se abre)*
- TN1-A *(p. túnel 1 se abre)*
- TN1-C *(p. túnel 1 se cierre)*
- TN2-A *(p. túnel 2 se abre)*
- TN2-C *(p. túnel 2 se cierre)*

Rel.	Relay function / Función de relé				
	Prog. 1	Prog. 2	Prog. 3	Prog. 4	Prog. 5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					

Rel.	Relay function / Función de relé				
	Prog. 1	Prog. 2	Prog. 3	Prog. 4	Prog. 5
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					

Rel.	Relay function / Función de relé				
	Prog. 1	Prog. 2	Prog. 3	Prog. 4	Prog. 5
57					
58					
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					
97					
98					

Rel.	Relay function / Función de relé				
	Prog. 1	Prog. 2	Prog. 3	Prog. 4	Prog. 5
99					
100					
101					
102					
103					
104					
105					
106					
107					
108					
109					
110					
111					
112					
113					
114					
115					
116					
117					
118					
119					
120					
121					
122					
123					
124					
125					
126					
127					
128					

[EN] Set-up Menu Worksheet

Parameter	Range	Your setting for program #				
		1	2	3	4	5
Contrast	10-100%	*Common to all programs*				
Key beeper tone	0-100%	*Common to all programs*				
Language	English / Español	*Common to all programs*				
Temperature Unit	Celsius or Fahrenheit	*Common to all programs*				
Time mode	AM/PM or 24-hour	*Common to all programs*				
Controller used for	Breeder /Broiler /Turkey	*Common to all programs*				
Use static pressure sensor?	Yes / No	*Common to all programs*				
Pressure Unit	Inches of water column (“WC) or Pascal (Pa)	*Common to all programs*				
Use relative humidity sensor?	Yes / No	*Common to all programs*				
Use RH min vent. compensation?	Yes / No					
Use outside T° sensor?	Yes / No	*Common to all programs*				
Use critical alarm ?	Yes / No	*Common to all programs*				
Number of programs	1-5	*Common to all programs*				
Number of water meter	1-2	*Common to all programs*				
Water meter unit	Gallon / Liter	*Common to all programs*				
Number of time clock	1-8					
Clock Mode	Start/Stop or Start/Run	*Common to all programs*				
Number of T° sensors	1-32 (#9-32=optional)					
Use wind speed?	Yes / No	*Common to all programs*				
Use ammonia sensor?	Yes / No	*Common to all programs*				
Use water flush?	Yes / No					
Number natural curtains	0-2					
Number of water lines	1-8					
Number of heaters	1-32					
Use heater RH compensation ?	Yes / No					
Use hi fire heaters?	Yes / No					
Number of fans	1-5					
Number of tunnel fans	1-20					
Number of coolings	1-6					

[ES] Plantilla del menú de instalación

Parámetros	Campo de valores	Su parámetro para el programa n°				
		1	2	3	4	5
Contraste	10-100%	*Común en todos los programas*				
Volumen teclado	0-100%	*Común en todos los programas*				
Idioma	English / Español	*Común en todos los programas*				
Unidades de temperatura	Celsius o Fahrenheit	*Común en todos los programas*				
Formato de hora	AM/PM o 24-hour	*Común en todos los programas*				
Tipo de producción	Ponedoras/Engorde/ Pavos	*Común en todos los programas*				
Utilizar sensor presión estát.	Sí / No	*Común en todos los programas*				
Unidades de presión	“WC o Pascal (Pa)	*Común en todos los programas*				
Utilizar sensor humedad rel.	Sí / No	*Común en todos los programas*				
Utilizar comp. HR en vent. mín	Sí / No					
Utilizar sensor T° exterior	Sí / No	*Común en todos los programas*				
Utilizar alarma T° crítica	Sí / No	*Común en todos los programas*				
N° de programas	1-5	*Común en todos los programas*				
N° de medidores de agua	1-2	*Común en todos los programas*				
Unidades medición agua	Galón / Litro	*Común en todos los programas*				
N° de salidas de reloj	1-8					
Modo de reloj	Inicio/Paro o Inicio/ Marcha	*Común en todos los programas*				
N° de sensores de T°	1-32 (9-32=opcional)					
Utilizar velocidad del viento	Sí / No	*Común en todos los programas*				
Utilizar sensor de amoniaco	Sí / No	*Común en todos los programas*				
Utilizar purga de agua	Sí / No					
N° de cortinas naturales	0-2					
N° de líneas de agua	1-8					
N° de calentadores	1-32					
Utilizar comp. HR con calent.	Sí / No					
Utilizar calentador fuego máx	Sí / No					
N° de ventiladores	1-5					
N° de ventiladores túnel	1-20					
N° de salidas de enfriamiento	1-6					
Parar enfriamiento si HR alta	Sí / No					

PRO-VISION

[EN]

Parameter	Range	Your setting for program #				
		1	2	3	4	5
RH shutoff cooling?	Yes / No					
Activate cooling on low RH?	Yes / No					
Number of feeders	1-4					
Use stir fan?	Yes / No					
Stir fan base on	Temperature/ Min Vent.					
Use light?	Yes / No					
Number of light program	1-9					
Use sidewall vent?	Yes / No					
Use tunnel inlet?	Yes / No					
Number of tunnel inlet	1-2					
Tunnel inlet mode	Temperat. / Pressure (S.P.)					
Use attic vent?	Yes / No					
Use attic T° sensor?	Yes / No	*Common to all programs*				
Use attic min vent. compens?	Yes / No					
Pre-opening mode	Manual / Automatic					
Use min vent. night on time?	Yes / No	*Common to all programs*				
Day starts at	0:00AM to 12:59PM	*Common to all programs*				
Night starts at	0:00AM to 12:59PM	*Common to all programs*				
Monitor breaker temperature?	Yes / No	*Common to all programs*				
Breaker sensor	Sensor 1-8	*Common to all programs*				
Approx. Operation cost	0.00 to 99.99$/KMH	*Common to all programs*				
Fan voltage	108V, 120V or 240V	*Common to all programs*				
Tun fan voltage	108V, 120V or 240V	*Common to all programs*				
Heat voltage	108V, 120V or 240V	*Common to all programs*				
Feed voltage	108V, 120V or 240V	*Common to all programs*				
Cool voltage	108V, 120V or 240V	*Common to all programs*				
Clock voltage	108V, 120V or 240V	*Common to all programs*				
Sitr fan voltage	108V, 120V or 240V	*Common to all programs*				
Light voltage	108V, 120V or 240V	*Common to all programs*				
Water flush voltage	108V, 120V or 240V	*Common to all programs*				

[ES]

Parámetros	Campo de valores	Su parámetro para el programa n°				
		1	2	3	4	5
Activar enfriamiento si HR baja	Sí / No					
N° de alimentadores	1-4					
Utilizar circuladores de aire	Sí / No					
Cicrulador según	Temperatura/ Vent. Mín					
Utilizar luces	Sí / No					
N° de programas de luz	1-9					
Utilizar ventanas laterales	Sí / No					
Utilizar puertas de túnel	Sí / No					
N° de puertas del túnel	1-2					
Operación puertas del túnel	Temperat. / Presión (P.E.)					
Utilizar ventana de ático	Sí / No					
Utilizar sensor T° en ático	Sí / No	*Común en todos los programas*				
Utilizar compensación de ático	Sí / No					
Modo preapertura de ventanas	Man. / Auto.					
Utilizar mín vent de noche	Sí / No	*Común en todos los programas*				
Día comienza a	0:00AM a 12:59PM	*Común en todos los programas*				
Noche comienza a	0:00AM a 12:59PM	*Común en todos los programas*				
Supervisar T° del disyuntor	Sí / No	*Común en todos los programas*				
Sensor del disyuntor	Sensor 1-8	*Común en todos los programas*				
Utilizar contraseñas	Sí / No	*Común en todos los programas*				
N° de relés	3 RP-40, 4 RP-32, RP-32 1 RP-40, 1 RP-40 &1 RP-16, 2 RP-32, 2 RP-40, 3 RP-32	*Común en todos los programas*				
Utilizar sensor corriente	Sí / No	*Común en todos los programas*				
Costo operación aprox.	0.00 a 99.99$/KWH	*Común en todos los programas*				
Tensión Ventil.	108V, 120V o 240V	*Común en todos los programas*				
Tensión V.túnel	108V, 120V o 240V	*Común en todos los programas*				
Tensión Calent.	108V, 120V o 240V	*Común en todos los programas*				
Tensión Calent.	108V, 120V o 240V	*Común en todos los programas*				
Tensión Enfri.	108V, 120V o 240V	*Común en todos los programas*				
Tensión Reloj	108V, 120V o 240V	*Común en todos los programas*				

[EN]

Parameter	Range	Your setting for program #				
		1	2	3	4	5
Backup voltage	108V, 120V or 240V	*Common to all programs*				
Sidewall voltage	108V, 120V or 240V	*Common to all programs*				
Tun inlet voltage	108V, 120V or 240V	*Common to all programs*				
Natural curtain voltage	108V, 120V or 240V	*Common to all programs*				
Attic voltage	108V, 120V or 240V	*Common to all programs*				
Egg cool voltage	108V, 120V or 240V	*Common to all programs*				
Egg heat voltage	108V, 120V or 240V	*Common to all programs*				
Egg RH voltage	108V, 120V or 240V	*Common to all programs*				
Low SP device voltage	108V, 120V or 240V	*Common to all programs*				
Number of relays	3 RP-40, 4 RP-32, RP-32 1 RP-40, 1 RP-40 &1 RP-16, 2 RP-32, 2 RP-40, 3 RP-32	*Common to all programs*				
Use current sensor ?	Yes / No	*Common to all programs*				
Use passwords?	Yes / No	*Common to all programs*				
Communication speed	Low / High	*Common to all programs*				
Current condition display	All, w/o heat run time, w/o heat run time & T° sensors	*Common to all programs*				

[ES]

Parámetros	Campo de valores	Su parámetro para el programa n°				
		1	2	3	4	5
Tensión Circul.	108V, 120V o 240V	*Común en todos los programas*				
Tensión Luces	108V, 120V o 240V	*Común en todos los programas*				
Tensión Purga agua	108V, 120V o 240V	*Común en todos los programas*				
Tensión respaldo	108V, 120V o 240V	*Común en todos los programas*				
Tensión V.Lateral	108V, 120V o 240V	*Común en todos los programas*				
Tensión cortina naturall	108V, 120V o 240V	*Común en todos los programas*				
Tensión Puerta Túnel	108V, 120V o 240V	*Común en todos los programas*				
Tensión Atico	108V, 120V o 240V	*Común en todos los programas*				
Tensión Hu.Enfri	108V, 120V o 240V	*Común en todos los programas*				
Tensión Hu.Calent.	108V, 120V o 240V	*Común en todos los programas*				
Tensión HR	108V, 120V o 240V	*Común en todos los programas*				
Tensión dispos.PE baj	108V, 120V o 240V	*Común en todos los programas*				
Velocidad de comunicación	Alta / Baja	*Común en todos los programas*				
Condicion actual muestra	Todo, – calent., -calent, -T°	*Común en todos los programas*				

NOTES / NOTAS

NOTES / NOTAS